

THE AUTOMOBILE

What the Unsophisticated Discover

How They Find Out In the Course of Time That Experience Has To Be Paid For In Cash

WHEN the High Jinks Automobile Company settled down to the manufacture of automobiles in the town of X—and engaged the services of a capable automobile engineer to design its model it was the firm resolve of the board of directors to turn out an automobile of such good quality that it would sell itself. The president of the company was a man of sterling worth, with no experience in the selling of goods on a national basis. The idea that dominated Mr. Commercial Ideal, if it may be called an idea, was founded upon his experience among his kindly disposed neighbors; he had dealt with them from boyhood; they knew him for an earnest and right-thinking Christian gentleman. When the board of directors met and elected Mr. Commercial Ideal to the presidency it was agreed that the best policy was well represented in the idea that good automobiles would sell themselves. The new automobile engineer was brought into the board room and after he was introduced all around the friendly talk that was indulged in resulted in a further emphasis of the fact that good automobiles would sell themselves. The engineer, a clever mechanic, named Marlin, hailing from a little industrial center in New England, went out of the board room puffed up with the idea that he would build the best automobile in the world, barring none. But there was one point on which Marlin was lacking—he had a very stunted understanding of the dimensions of the world; moreover, let it be understood, he knew absolutely nothing about business, but he had stamina.

The new plant was fitted out in the latest and most approved way; Marlin had a lot of horse-sense. It was his duty to see that the machinery equipment was of the kind that would be of good service to him, and he called in machinery salesmen from all over the country, with the result that he learned all about the types of machines that could be had for his purpose; moreover, he read the "educational magazines" that were devoted to the good of the automobile industry, and,

let it be said, Marlin knew the difference between educational magazines and trade papers that tattle the gossip and flatter the men who are supposed to be able to influence advertising.

Marlin looked through the long list of papers that feed upon the automobile industry and soon found that there were but very few of them that published "pay matter." Marlin also discovered that advertising was stored away in strange places—that is to say, the advertising of automobiles—some of it going the length of nestling up alongside of corsets, soap, notions and fashion plates. But it did not take this hard-headed New Eng-



HARVARD UNIVERSITY—ITS CIRCULATION IS COUNTED BY THE NUMBER OF MEN WHO PASS THROUGH ITS PORTALS

lander more than a week to reach the conclusion that there might be something in such mediums for a woman with a light head, or funds, remembering, of course, that some women have their heads made light through funds, consulting advertising mediums in relation to the chemicals that are most efficacious for the purpose; but there was nothing substantial there for him, and his choice soon dwindled down to the educational magazines, and he remarked, "Never again," as he put one of the "corset covers" in his overcoat pocket and said, "I will take it home for the 'kiddie' to mark up and admire"—quite a few of the illustrations were in color and looked good to the eye.

By dint of hard labor Marlin organized the plant, purchased and installed the machinery, put in a power plant, had the electric lights installed, and accomplished all the manifold things that fall to the lot of a hard-working engineer who is given the task of building automobiles from the "blue."

In the meantime the draughtsman, whom Marlin had set to work in an old building that was on the ground when title was taken to it, made good progress with the design of the new automobile, and since much of the material was to be purchased from parts-makers (including the motor) it should not be considered strange if the new model was in sight by the time Marlin had the building erected and the machinery equipment installed.

In another month the new model was on the road being tested out. There were a few corrections to be made, but on the whole the car was as good as it looked and, according to the criticisms of those who were privileged to look upon it, the new model promised to come up to the highest expectations of the most fastidious automobilist; but it was not as yet a proven fact that the new car would be so good that it would sell itself. In all truth, as the days wore into months, the board of directors began to have misgivings; they were beginning to see their money go out, and in proportion, it will be understood, their nerve was oozing out also.

The Board Held a Ways and Means Meeting

Marlin worked day and night upon the half-completed model of the car and in another month the motor was purring like a contented cat; the chassis was up to his most sanguine expectation, and the general appearance of the automobile was all that the board of directors could possibly hope for. It was clearly up to the board to make good. Mr. Commercial Ideal, the president, was called upon one fine June day to explain just what his plans were for the sale of the automobiles that were to be manufactured. The board of directors could not go ahead and order material for a "lot" of automobiles without knowing how many of them could be sold. It would be inexpedient to order materials and parts for 3,000 automobiles if barely 1,000 automobiles could be sold, for, said one of the more learned of the board, the profit on the whole lot would soon be turned into a loss were a large percentage of the automobiles to remain unsold. Automobiles fall out of style too soon after they are made to be classed as anything but perishable property.

When Mr. Commercial Ideal came into the presence of the august board of directors he was wholly unprepared for the ordeal. He had gone along on the idea that the automobile would be so good that it would sell itself. The first question that was fired at him as he came into the board room was: "Have you made any progress toward the selling of the output of this plant?"

"No!" said the president. "I have kept the whole matter a secret for fear that some one would catch on to what we are doing and steal our ideas!"

"But, Mr. Commercial Ideal, what is the difference? When the automobiles are sold they will have to be delivered to the purchasers, and if anyone desires to then copy the model how is he to be prevented from doing so?"

"Well," said he, "we should defer the evil day as long as possible!"

"Bosh!" said the board of directors *viva voce*.

At all events, as a result of the pow-wow, things took on a turn. Mr. Commercial Ideal was advised to improvise some plan that would work, and the last thing he heard as he went out of the board room was: "Advertise!"

The close association of Mr. Commercial Ideal with the engineer, Marlin, during the intervening months, had quite an effect upon the former. He learned to respect the views of the hard-headed engineer and he learned to respect the expressions of opinion of the man who had done well in his own department under adverse conditions; but it cannot be said with certainty that Mr. Commercial Ideal had reached any conclusion that would disclose the source of good information that had influenced the activities of the engineer.

Advertising Men Were Enlisted in the Cause

When the president of the company went out into the darkness of the world, away from the hypnotic influence of the board of directors, he found himself in a grave quandary. He remembered the last words of the board of directors—"Advertise"—and he wondered whether or not the board had lost its head. The idea of advertising, if it is thrust upon the attention of a man who has depended all his life upon the patronage of his friends, is suicidal; he cannot for the life of him understand why money should be so recklessly disposed of. He is placed in a position of the man who cannot swim, and in this case to go to the engineer and tell him of the wonderful things that the board had seen fit to order was a natural desire.

To find Marlin was not a difficult task; he was always at his post of duty, either working on some matured plan or pondering over the things that remained to be done, using his spare time in perusing the pages of the educational magazines for no better purpose than to help him make good decisions. When the president came into the presence of the engineer it was apparent to Marlin that something was amiss. The president was excited and his face showed concern. After a pause, accompanied by some deliberation, the president said to the engineer: "Marlin, I am confronted by a problem that looks formidable to me. The board has ordered me to sell the automobiles that you are about to make, and, so they say, it will be impossible for them to tell you how many to build unless I give them definite information of the number of automobiles that I can sell. What do you think of that?"

"That strikes me as being a very reasonable position, Mr. Commercial Ideal. It would be inexpedient to build a considerable number of automobiles without knowing whether or not they can be readily disposed of at a profit."

"How can such a thing be accomplished, Marlin?" said the president.

"Advertise," said the engineer.

"Dear me!" said the president, "here you are saying the self-same thing that the board of directors proclaimed in one voice. Where did you get the idea?"

"I? Where did I get the idea, did you say?" said Marlin. "Why, how would you go about it? If customers do not know that you are building automobiles how are they to know that they are to be had, and where to get them?"

"Why, Marlin, I am known by every man, woman and child in four counties! Why do you talk like that?"

"Certainly," said Marlin, "you are the best known man in this part of the country; but do you know enough people so that you can dispose of 3,000 automobiles this year, 6,000 automobiles next year, and 10,000 automobiles every year after that?"

The president walked up and down the length of the engineering office for several minutes and at length he turned about, looked at the engineer in a quizzical sort of a way, cleared his throat, and said: "Marlin, was it not your idea that we were to build such good automobiles that they would sell themselves?"

Marlin, who was figuring out a problem, taking his method of solving the problem from an educational magazine, reached the end of a formidable equation, and, looking up suddenly, said: "Mr. Commercial Ideal, the automobiles that we are about to

make may be so good when they are completed that they will sell themselves, but they will not smell so strong that they will attract purchasers to this plant. You certainly will have to attract the notice of the possible customer."

"Marlin, I think that you are right," said the president. "How would you go about it?"

"Advertise," said Marlin.

"What is advertising," asked the president.

"What is advertising?" repeated Marlin. "Advertising is making a favorable impression!"

"But," said the president, "did you not just say that we have to attract the notice of customers; is not that advertising?"

"Doesn't a rattlesnake attract attention?" said Marlin. "But does he make a favorable impression?"

Advertising Man Is Called Upon to Help Out

"Marlin," said the president, "I think that I will get one of those advertising chaps to tell me what to do!"

"That may be a good idea, Mr. Commercial Ideal, but as I understand it we are now in a position to build a good automobile and to duplicate it at a reasonable price on a basis of 3,000 the first year. The remaining question is: Can we get rid of the cars? This company has gone to the trouble of engaging a corps of men; it has paid for considerable equipment, and it has done a large number of things that will stand as a loss unless it now builds cars up to the limit of its capacity and sells those cars at a reasonable price. Do I now understand that you propose to place this most important matter (the sale of these cars) into the keeping of some man whom you do not know?"

"Marlin," said the president, "you are a hard-headed Yankee. You have basic possibilities from a business point of view. I do wish that you were my assistant, and that we could get an engineer to do the work that occupies all of your time. I could use you every minute of the time."

"Mr. Commercial Ideal," said Marlin, "you need a man in the engineering office for the purpose of building the automobiles so well that you will be placed in a position to take advantage of the idea that they will sell themselves; you could ill afford to take me out of the engineering office for no better purpose than to help you do the work that you are supposed to look after."

"Yes, Marlin, I know; you are right, in a sense; at the same time, you do seem to appreciate some things that are new to me. I need just the kind of help that you can give."

"No doubt, Mr. Commercial Ideal, you do need assistance, but I am not the right man. I am a shop man. I can do a certain class of work. I make a study of that particular idea, and I would be a novice at the work that you are supposed to do."

"But, Marlin, if you are a novice at the work that you are now telling me how to do, although, as you say, it is out of your line, where am I at?"

"You must be at the point, Mr. Commercial Ideal, when it is incumbent upon you to learn something about the automobile business."

"But," said Mr. Commercial Ideal, "what is the need of me knowing how to build automobiles and all that sort of thing? That is what we have you for; is it not?"

"Mr. President," said Marlin, "it is necessary to the success of this business that you dispose of all the automobiles that I can turn out of this plant in order that the 'overhead' may be kept down to the lowest possible limit. You can not sell that which you are incapable of describing!"

"But, Marlin," said the president, "I can get an advertising man to do the describing for me, can I not?"

"Mr. President, can the advertising man make a clear description of that which he does not understand? Remember that we are making an automobile of such good quality that it will sell itself if only a prospective can be induced to look at the car?"

"Marlin," said the president, "you are wrong in your posi-

tion in one sense. If an advertising man will write glittering generalities that will attract the notice of the readers of magazines, the car, being so good, will sell itself when the prospectives come to look at the 'wonder' that the advertising man will be able to picture as a result of his gift of tongue. His description will fit every automobile under the sun!"

"Mr. President," said Marlin, "you are being hoist by your own petard. The advertising man's language will fit, or misfit, any automobile—will it fit the state of mind of the buyers of automobiles?"

Experiment Offers Excellent Possibilities

It was in a sad state of mind that the president went forth from the engineer's office, and making straight for his own bailiwick he seated himself at his mahogany desk, called the stenographer and dictated a letter to a famous advertising agency, which read like this:

Gentlemen:

We lately undertook to manufacture automobiles, and now that the first model of the product is on the road and performing satisfactorily, it is our wish to advance the sale of as many cars as possible. We understand that you will be able to make these sales, and it is our desire that you shall come here and tell us how you would go about it and how much it will cost us to get you to free us from our present embarrassment. Wire when we may expect you.

Yours very truly,
(Signed) COMMERCIAL IDEAL,
President.

The answer came wire-haste:

Guarantee to sell every automobile that you can make; \$50,000 advertising man took "Limited" an hour ago.

(Signed) DOUBLE TEN PER CENT ADVERTISING AGENCY.

Upon receipt of this most encouraging evidence of the ability of the advertising doctor to sell all of the automobiles that the company might be able to make, the president was so much elated that he went back to the engineering office and bursting in upon Marlin, who at the time was looking into the principles of advertising, said:

"Marlin, I have it. Everything is all right. You will be able to go ahead and make as many automobiles as you possibly can. Look at this wire!"

Reading the wire, Marlin looked out of the window for too long a time to suit the president, who showed his impatience by scraping his feet on the floor. At length the engineer turned around in his chair and said: "What has the salary of the advertising man to do with the selling of our make of automobiles? Who pays that salary? Does this man know anything about our make of cars? If so, where did he acquire the information? If he is informed about our car, he is a far smarter man than I am, and the quicker you engage him in my place the better for the company! If he is not informed about the automobile that we are turning out it strikes me that he is looking for some one to help pay that \$50,000 salary."

"Marlin, you are a great bore," said the president.

"Mr. Ideal," said Marlin, "maybe I am; you know, however, that we started out to build such good automobiles that they would attract the attention of buyers who would be willing to pay the extra price, comparing our make of car with those that are built to sell on price only; and from what I am able to gather this same \$50,000 advertising man is engaged in making advertising costs for the concerns who rely upon low price and loud talk to dispose of their goods. How is this man to honestly serve two masters? Will he not take the good points in our make of automobile and apply them to the advertising copy of the low-priced car, thus transferring the benefit to the company that will net him the largest commission?"

"Marlin, between the advertising man and your well-put talk I will be a nervous wreck!"

"Mr. President," said Marlin, "it is not necessary for you to wreck your nerves. All that you have to do is to send for all the advertising men in the country if necessary; let them come into your office one at a time and tell you what they know. Be sure and have a stenographer behind a screen in such close

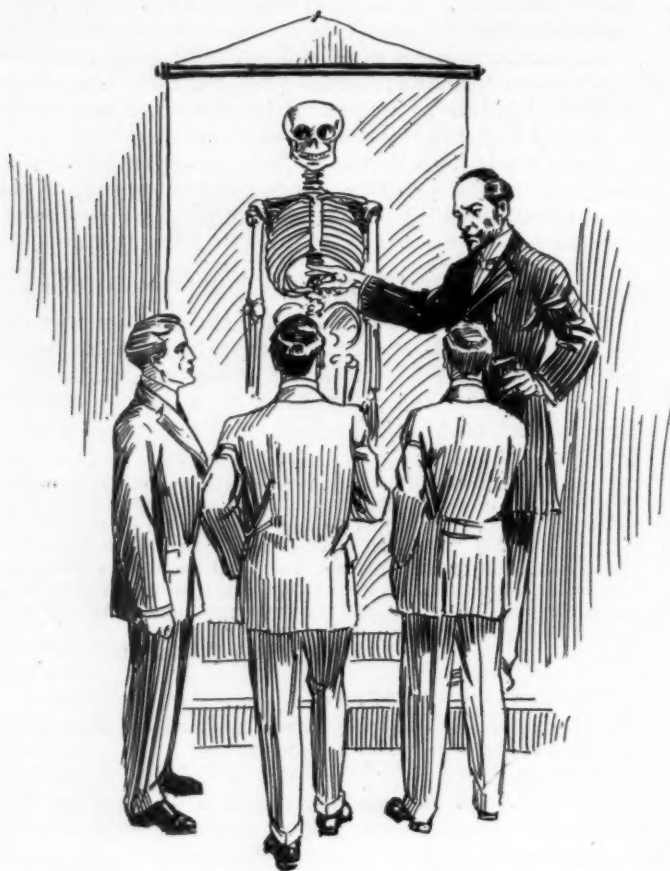


Fig. 1—Someone must impart accurate information to those who have the time, patience and the basic intelligence to receive the imprint—doctors abound in every walk in life and gather in the information



Fig. 3—Doctor of medicine edits a medical journal—the information contained is true of the educational journal that



Fig. 2—The patient, be he ailing from a bodily ill, or some worry of the mind, as when an automobile is to be purchased, consults the intelligent in his community—the "doctor."

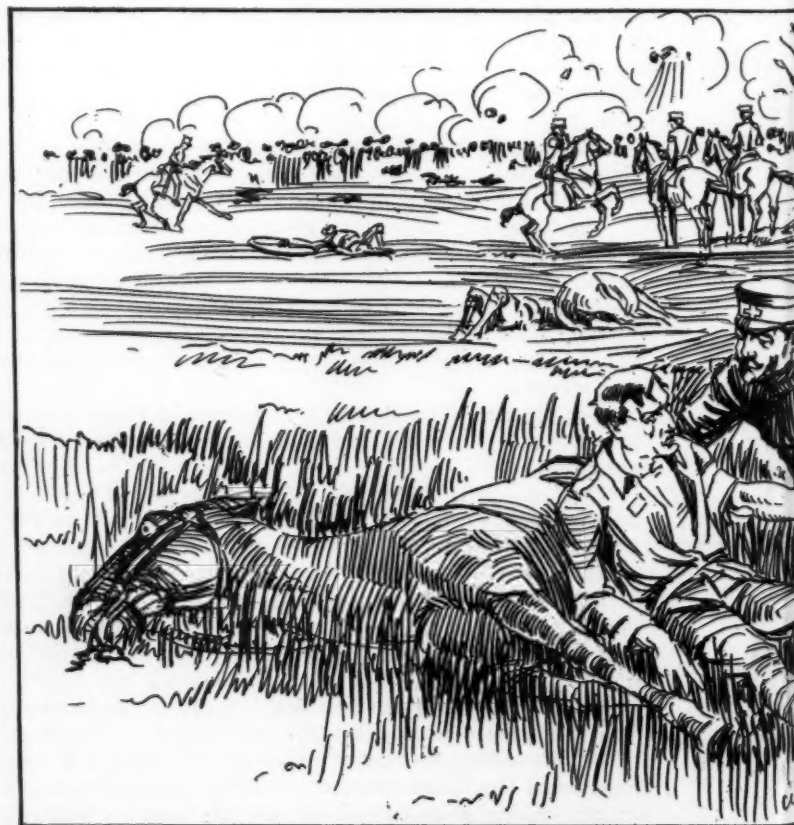


Fig. 4—Showing how accurate information in the possession of one man wounded men on a battlefield. It is so with the automobile art. One community.



tained therein must be authentic if the journal is to be of any value—the faithfully serves the automobile industry



Fig. 5—Actual knowledge, in the keeping of an intelligent man, as a "doctor," or one who uses an automobile, is as good for general use in Africa as it is in America



(medical man in this example) is placed at the disposal of hundreds of well-informed, intelligent man, in each community, is the "doctor" for that



Fig. 6—Educational magazines are subscribed for by the most intelligent in each art and industry—the doctor of medicine is no exception to the rule.

proximity that she will be able to take down every word that is uttered by each of them, and when the notes so taken are transcribed, all that you will have to do is to read them over and it is my opinion that you will discover that the advertising men who know absolutely nothing about automobiles will be in the majority and you will then be able to determine just what you ought to do. It is my firm belief that the advertising men from the educational magazines devoted to the good of the automobile industry will be the proper persons to advise you in the matter of a consistent advertising campaign, because they will surely know what they are talking about and it is to their interest to help you to make a success of this business."

"Marlin, I will do as you say," said the president.

Going back to his office the president called for his stenographer, told her of the plan that was to be carried out and dictated another wire instructing her to send a copy of it to certain advertising mediums and agencies. The next step was to send for the carpenter, who came in all out of breath so urgent was the call, and as he shot into the office the president said: "Chips, I want you to place a closet right there back of my desk; make it large enough to accommodate a chair and a table; have it lighted by electricity and well ventilated—don't ask questions; do as I tell you; and, remember, it must be ready within an hour!"

It was a great day at the plant. Excitement was in the air. Enterprise was peeking its head out at every point. The president wore a smile; the engineer looked serene—confidence had him in a firm grasp. The carpenter worked as he never did before, and within the hour the cabinet was completed, and a demure little body in a blue frock, and with calm and determined air about her, was seated at the deal table in the cabinet, pencil in hand and notebook spread out upon the table. The president was at his post.

The "Limited"—the lap of luxury on wheels—rolled into the station on time. A mighty personage alighted. In lordly way he ordered a cab. "Drive me to the shanty where they think that they make automobiles. I am Mr. \$50,000 Per Year, the greatest advertising man in the world. Get a hustle on you!"

The cabman hustled accordingly. Arriving at the plant, he dumped his "fare" and as he turned his horse away in the direction of the railway station he might have been heard to say: "Mr. \$50,000; well, I'll be damned—I always knew that money had a bad odor, but this is my first experience with enough of it at one time to catch a whiff of the real smell."

"Mr. Commercial Ideal, I believe!" said \$50,000 as he was shown into the president's office. "I have always wanted to meet you. There are just three men in the country whom I want to have the honor of knowing; you are one of the three!"

"I am Commercial Ideal, at your service, Mr. \$50,000. What can I do for you?"

"I am a very busy man, as you will readily appreciate. You want me to sell your automobiles for you—that is my business!"

"I will greatly appreciate your advice, Mr. \$50,000. What is your plan?"

"I have a marvelous plan of campaign for you, Mr. Ideal. It will work like a charm. All that you have to do is to make an appropriation!"

"How much of an appropriation? What will it be for?"

"Why, Mr. Commercial Ideal, for advertising, of course; all that you will have to do is to make the appropriation, say \$100,000. I will relieve you of all the trouble; you will not have to see any other men in the advertising line; they will deal with me!"

"Your idea is an excellent one, Mr. \$50,000. What papers would you recommend?"

"I would save you all the trouble of bothering with such details. It would be my purpose to space you in the papers of the highest standing and the largest general circulation. National advertising, you must appreciate, is different from anything else; you would reach hundreds of thousands of readers in this way. My copy would do the rest!"

"How about the educational magazines; those that are devoted to the automobile industry? What of them?"

"Nobody reads them. They are too technical. The circulation is too limited. You leave it to me—sign here!"

"Thank you, Mr. \$50,000; but I will have to consult the board of directors before I will be in a position to give you \$100,000; they will want to know just what it is for!"

On the heels of \$50,000, as he made his crestfallen way out of the president's office, came the bold representative of a trade paper that festers in the epidermis of the automobile industry—a fellow by the name of 3,000 Circulation.

"Hello, Ideal! Got your wire! (Pats Ideal on the back.) Bully for you! I knew you were a world-beater! Let me have your photograph for the next issue of the paper. Have you any photographs of the new car? Give me some material for a write-up. Great plant! My! But you fellows are hustlers; the last time I was in this town all that I could find was a Sorghum mill and a cemetery. Looks like automobile-row now. How are you, anyway? Make it a page—52 times."

The train that rolled out of the station a half-hour later took 3,000 Circulation along, and the solicitor of an educational magazine caught a glimpse of him as the latter alighted from the train on his way to see Mr. Commercial Ideal.

"Mr. Commercial Ideal," said the solicitor, "you requested the magazine that I have the honor to represent to dispatch a solicitor to call upon you for the purpose of stating what we can do for you in the matter of helping you to profitably dispose of the automobiles that you are making preparation to manufacture, if I understand your position aright."

"You gather the right impression, Mr. er—er—"

"Conservative Business, at your service, Mr. Commercial Ideal."

"What is your plan, Mr. Conservative Business?" asked the president.

"My plan, Mr. Commercial Ideal? I have no plan! What is your plan?"

"I sent for you to tell me how to dispose of my goods! What can you do for me?"

"Nothing! I do not know what your position is! It would be impossible for me to tell you how to sell automobiles when I do not know what kind of automobiles you have in mind."

"Do you wish to look at the plant?"

"Not only do I desire to see what you are doing, but I must also have a capable automobile engineer come here and advise me of the scope of the work."

"Are you not capable of making a sufficient examination?"

"No. I am the solicitor. True, I make a point of learning as much as I can about automobile work, but a professional automobile engineer of high standing would be in a position to discover points that I might miss. Good advertising is only possible if good information is available."

"What's the matter with our own engineer; he is a very capable man!"

"I do not expect to find anything the matter with your engineer, but he is not my engineer. I must have the assistance of an engineer who not only knows how to build automobiles, but who also knows how to describe them—he must also be neutral."

"Why neutral? Are you in league with the public?"

"No. I am in league with success."

"Explain."

"The reason why an educational magazine must examine the products that are to be advertised in its columns is in order to be able to tell the readers, with considerable exactness both in editorial and advertising space, what those products are and what they are for."

"Oh! You give write-ups?"

"No! We do not!"

"What is the difference editorially?"

"Mainly, in the presentation of the truth on an educational basis as compared with a 'puff' as represented in a write-up, so-called."

"Why do you go to so much pains in the preparation of such reading matter?"

"Because we owe it to the subscribers of the magazine to either leave out the advertising, or tell them what the equipment is for and how it works—they should be placed in a position to judge of the utility of the equipment."

"What is your circulation?"

"It depends upon how you view it."

"What do you mean?"

"I will answer by asking you a question. What is the circulation of a school or a university?"

"Why, Mr. Conservative Business! You astound me! Explain!"

"If you will pay strict attention, I will endeavor to do so. The circulation of a daily paper is measured by counting the number of subscribers that it has who read the paper every day. The subscription of a general magazine is measured in the same way as a daily paper. The circulation of a 'trade paper' is also counted by the number of actual readers that it legitimately lays claim to. This is true of mediums of these classes because (a) daily papers are of no value after they are one day old, due to the fact that the value of the news is killed by the next issue of the paper; new matters of interest supplant the old. (b) With general magazines, since they do not conduct an educational campaign along automobile lines, it stands to reason that those who are interested in automobiles look in automobile magazines of the educational sort for the information that they require. (c) With automobile trade papers of a certain class, the circulation must be counted for what it is worth, based upon the actual issue, due to the fact that the educational idea is not present unless in a negative form and the time has arrived among the patrons of the automobile industry when it will be possible to interest them in poisoned write-ups."

"Referring now to educational automobile magazines, they are like school-books, the dictionary, or the family Bible. The information, being authentic and apropos, is good at any time."

"But this is far from the end. Only the more intelligent of any community reads the best literature of the day in any given field of endeavor, and it is this intelligent class which is called upon and consulted by the less fortunate when the purchase of an automobile is contemplated. The best definition, then, of an educational automobile magazine circulation is that it is as extended as the number of persons who may have been educated through its efforts, just as the alumni of a college or university are as numerous as the number of graduates that it may lay claim to. The automobile magazine also has its readers who subscribe to the paper regularly, and it has its adherents who read the papers taken by friends, libraries, institutions, etc."

"I am greatly interested in what you have been telling me, Mr. Conservative Business. I now begin to appreciate some of the differences that exist between mediums. I assume that you would advise me to do all of my advertising in these educational automobile magazines?"

"No! Absolutely no!"

"No? Really, I am taken aback! What will I do?"

"Be a business man. Advertise your wares in the class of mediums that will reach the buyers of automobiles on the most likely and extended scale."

"Explain, Mr. Conservative Business!"

"Very good. What medium do you read most?"

"The daily paper."

"I answer you; advertise in the daily paper then."

"Why?"

"Because you are no different from other people; they all read the daily paper."

"What will happen if I advertise only in the daily papers?"

"If you maintain a consistent campaign, covering the whole country, a large number of readers will ultimately be apprised of the fact that you build automobiles."

"But will any considerable percentage of these readers purchase my automobiles?"

"Probably not."

"Why?"

"Because they will not be apprised of the character of the automobiles that you make."

"But, Mr. Conservative Business, I can explain all of that in my advertising."

"True."

"Well, what is the matter with doing so?"

"What do you think is the matter with the plan?"

"Well, Mr. Conservative Business, I think it would be too expensive a plan. Then, I fear that the reader would be a little incredulous."

"How would you be affected by explanations of this character set forth in the daily papers?"

"I would take very little stock in such matter; it would please me most to have your engineer examine my automobiles and tell about them in your educational magazine."

"It is very good of you, Mr. Commercial Ideal."

"But I suppose that I would have to advertise in your magazine to get anything like that."

"No! Not at all! Come to think of it, your new automobile was described in my magazine last week! I have a copy of the paper in my pocket—here it is."

The president of the company examined the paper, taking, perhaps, twenty minutes. He seemed to be looking for the place in the description of the new car where it would be praised to the sky, but, not finding it, he turned to the solicitor and said: "Well, it is accurate at all events. Any reader who follows this article will not be led astray."

"That is our greatest aim, Mr. Commercial Ideal."

"How did you get the information?"

"I do not know, Mr. Commercial Ideal. The editorial department never consults the advertising end of the business about any such matters."

"Again I thank you, Mr. Conservative Business. I have been benefited by your call. May I impose upon your good nature for just a little longer?"

"It will be my pleasure, Mr. Commercial Ideal, to remain just so long as you find it profitable for me to do so, but not another moment."

Things Assume a Serious Aspect

"I want to plan a campaign that will assure to this company the sale of 3,000 of the automobiles that we are about to make. How shall I go about it?"

"Advertise!"

"In what mediums?"

"First, the daily papers."

"Where next?"

"In the educational magazines devoted to the automobile industry."

"What will I say in the daily papers?"

"State briefly and truculently, the type of automobile that you are making and the nature of the service that may be obtained from its use."

"What will I say in the educational automobile papers?"

"Say that which will make a favorable impression."

"How do you make a favorable impression?"

"First, place your advertising in the automobile magazines that are known to adhere to the truth!"

"And second?"

"Oh, as to that, have the facts—in other words, the truth—set down by an engineering writer of great skill; let him tell the intelligent readers of the educational papers all about your automobiles, how they are made, and what they are designed to do in every-day service."

"Mr. Conservative Business, how much does your company pay you? That fellow \$50,000-a-Year did not seem to know anything about selling automobiles! You have comforted me in my dilemma! I now feel capable of mastering the task that has been set for me to accomplish."

"Why, Mr. Commercial Ideal! I do not get \$50,000. I receive what I am worth! You see, it is different with the men who serve the advertiser for compensation, and who then exact a commission from the publisher besides. They do not, of necessity, earn \$50,000; they simply get this amount!"

"Dear me, Mr. Conservative Business! You wrong them just a little, do you not? Some of them seem to be willing to handle accounts without cost to the advertiser. I assume that they get a commission out of the papers."

"In other words, Mr. President, you are now talking about doing the most important part of your business on a basis of assumption!"

"What do you mean?"

"Let me ask for information. Is it not true that \$50,000-a-Year suggested to you that you will be in sore need of a man to handle your publicity?"

"Why, yes! So he did! What of it?"

"Did he offer to get the best man in the country for you?"

"Bless my soul! He did!"

"It would save you all the bother, eh? He would get you a lot of free advertising?"

"Exactly!"

"Liberal offer, is it not? Why do you hesitate?"

"It did occur to me that this was the only sensible thing that he said."

"The man that he would get would be willing to work for a salary that would not be half of what he is worth, eh! Had lung trouble! Wanted to get out of the large city into God's free air—loved sunshine!"

"You have his measure."

"You did not get from this advertising man the list of papers that he would use for you, did you?"

"No!"

"The publicity man that he would get for you would be able to help you make the selection!"

"That is what he said!"

"Well!"

"For God's sake, Mr. Conservative Business, cast some light upon this subject. I am interested."

"The great question, Mr. Commercial Ideal, from the general advertising man's point of view, is to place the advertising where your money will go the fastest."

"Well?"

"The saving that can be brought about in this way is so large that the great 'game' is to induce you to go into national magazines."

"Why?"

"The amount of copy that the advertising man would then have to prepare, per thousand dollars of account, would be reduced to the absolute minimum."

"By the way, Mr. Conservative Business, what do you mean by a national magazine?"

"I mean, if you please, the magazine that will take business from any art or industry—that does not devote any part of its editorial space to the good of the automobile industry from an educational point of view."

"Are there not a number of advertising men who are reliable?"

"Most assuredly!"

"How will I know them?"

"They will advocate to you the class of advertising that your own good sense will tell you is the kind that you should indulge in."

"Do you recommend that I utilize the services of outside advertising men at all?"

"The best plan, under all circumstances, is to run your own business. If you cannot do so, then get someone to do it for you. Hire a man whom you can rely upon—your man."

"One more point! If I advertise in daily papers, at a considerable cost, can you show me how to get the rest of what I want at small cost by going into the educational magazines that are devoted to the automobile industry?"

"You suggest the Russian plan, Mr. Commercial Ideal! Education in Russia is at a low ebb."

"Dear me!"

"Eh?"

"I was thinking!"

Two Confidants Have a Long Talk

"Marlin! Marlin! Marlin! Where are you?"

"Hello! Mr. Commercial Ideal! Here I am!"

"Marlin! By George! I have had a great time! Come to think of it, that last man failed to ask me to sign anything! Bully chap, Marlin! Great!"

"Why! Mr. Commercial Ideal! What's up?"

"Marlin! You're a brick! A veritable brick!"

"Oh! Come now! What's up?"

"Marlin! I sent for those advertising men and the first fellow, \$50,000, wanted me to sign my birthright away. I resisted. The second chap, the fellow from the trade paper, what's his name? Oh! 3,000 Circulation, he patted me on the back and wanted to print my picture. But the third man, by George! Marlin! he gave me more information than I ever hope to get from any other man as long as I live—he was from the educational magazines that are devoted to the interests of automobiling."

"Nothing strange about that!"

"Marlin! Here are the notes that the stenographer took. Read them. Tell me what you think."

After reading the whole mess from end to end, Marlin paused for a long time, looking out across the river, shifting his gaze from time to time to some children who were making mud pies down by the river bank, and then, awakening from his reverie, said: "Nice 'kiddies,' them!"

"Come! Come! Marlin! It's business!"

"So it is, Mr. Commercial Ideal, so it is."

"Well?"

"I was just thinking, Mr. Commercial Ideal, what a nice thing it would be to help that first fellow play at making mud pies were it not for the cost. It also occurred to me that there was something muddy about that second fellow."

"How about the last one, Marlin?"

"Oh! The third man?"

"Yes!"

"He told the truth!"

"Well?"

"That is precisely what you were in search of!"

"True!"

"Er—er"

"What?"

"I was thinking."

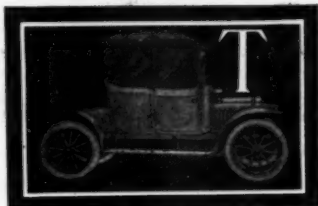
When the Water Boils Away

The average man, when he goes in quest of an automobile, looks at the color, inspects the upholstery, takes a longing look at the machinery, sees if he likes the front profile, but never a thought does he give to the ability of the radiator. When the automobile is transferred to him, if the radiator steams, he will fill it up as often as he meets a mud-puddle, and later on, as the motor heats up, he will say that there is carbon in the cylinders, but it will never occur to him that there is a coat of mud all over the cooling surfaces, beginning with the exterior domes of the cylinders and ending with the last square inch of the water surface of the radiator.

What a blessing it will be when automobilists learn to be careful about the radiator, not only in the matter of paying enough money to get one that will comfortably do the work, but also, later on, when it becomes their duty to fill the vacant space with water as fast as evaporation takes place. That mud and water are what are wanted cannot be shown by any literature available, but it should be clear enough to any one that mud would be recommended by the makers were it known to possess better cooling qualities than water.

Doctor Eager Buys a Car

When the Purchaser Knows Very Little or Nothing About It and the Seller's Representative Is "Viscous" the Task Is Formidable, but the Risk Belongs to the Purchaser



TING-A-LING-A-LING! It was Dr. Eager's telephone bell. The doctor was at breakfast in the morning. It was a sleety day. The trolley cars would hardly be running. Out in the suburbs it was hardly to be expected that a taxicab could be had at any reasonable price, even if the doctor could afford one, or that it would respond to a call within an hour.

The doctor's wife: "Dear, this a terrible morning!"

"Yes!" said the doctor. (Ting-a-ling-a-ling!) "There goes that call again," said he. "What do you think is the probability of having to walk a mile in this kind of going?"

"Excellent," said the lady of the house.

"What—the going or the walk?"

"Both!"

(Ting-a-ling-a-ling!)

"Wish I had an automobile."

"Wish you did!" (Ting-a-ling-a-ling!)

"Wouldn't it be fine?"

"Magnificent!"

"For me?"

"For me?"

(Ting-a-ling-a-ling!)

"For you?"

"Just so!"

"Why! I'm the one that has to go out!"

"And I'm the one that would have to go out with you if we had an automobile."

"What would you go out for?" (Ting-a-ling-a-ling!)

"I'd hold the reins."

"But there are no reins on an automobile!"

"Perhaps not, but there are reins on you!"

"Just so!"

"I was just think——" (Ting-a-ling-a-ling!) "I was just ——"

"What?"

"That 'phone!"

"The 'phone is doing very nicely, my dear—slightly feverish. I should say."

"Slightly!"

"It grows upon me, by slow degrees, that we should have a little car—one that I could use in my business, don't you know?"

(Ting-a-ling-a-ling!) "A little car!"

"Yes."

"Just a wee little car."

"Yes."

"So big! (holding her hands a foot apart, measuring).

He: "Well!"

"With a seat for one."

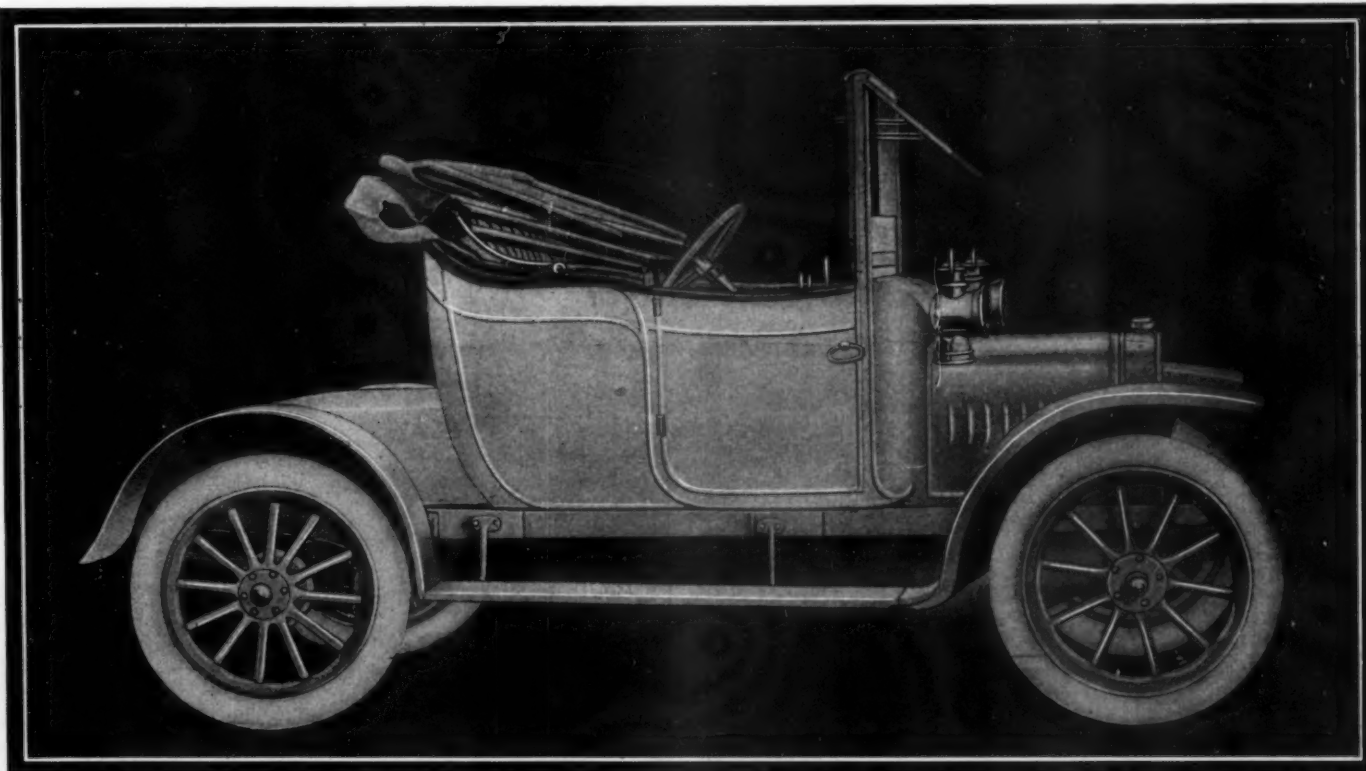
"Two!"

"Who is the other one?"

(Ting-a-ling-a-ling!) "You!"

"There goes that bell."

"D——"



IDEAL DOCTOR'S RIG, WITH INSIDE DRIVE, COLLAPSIBLE TOP AND FIXED PILLAR FRONT

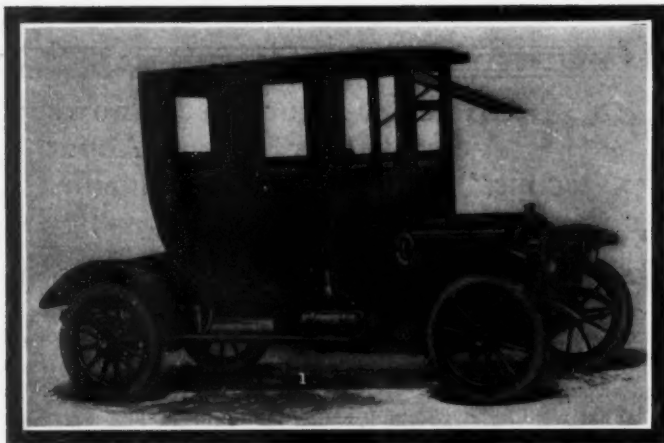


Fig. 1—White inside drive to seat three

"You will have to pay a professional call."

"On who?"

"That 'phone!"

"Ha! ha! ha! ha!"

The doctor was young; he matriculated barely three years before the opening of this narrative, having done his turn in a city hospital, and married, all within the intervening time. He was a busy man up to the day when he settled down to the long drive of waiting for patients, and while he realized that people were ailing all around him he was also conscious of the fact that they were not taking any long chances with him. But the doctor's wife had to be figured in. She was not to be trifled with. Looking after the welfare of the doctor, keeping the house tidied up, doing her own sewing, calling upon the ailing poor, helping in church work, actively participating in charities—all of these undertakings, and more besides, left but little time for serious thinking, but the doctor's wife was as animated as she was vivacious—she made time.

Breakfast Table Was a Good Place to Talk It Over

"I saw Dr. P— going by yesterday."

"Yes," said the doctor.

"Looked prosperous."

"Yes?"

"Long ways out here for him."

"He'll kill that nag, my dear."

She: "No, he won't."

"Why?"

"Why! Don't you know?"

"I begin to think that I ought to have an automobile."

"Big limousine!"

"What?"

"Monstrous touring car?"

"Come again."

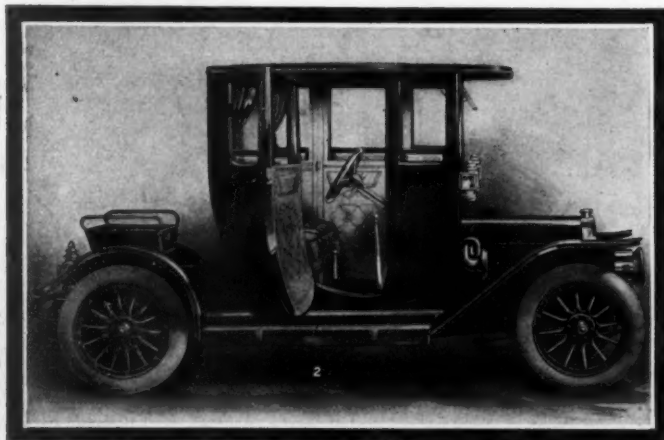


Fig. 2—Stoddard-Dayton with inside drive and rumble seat

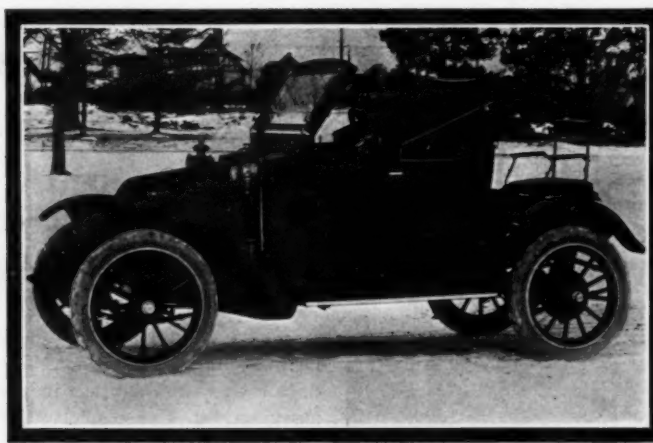


Fig. 3—Franklin two-seater coupé with folding rumble

"Rakish roadster."

"Once more."

"What?"

"A doctor's car!"

"Good."

"It's just this way, dearie, sick people are cured more by the confidence that they impose in the doctor than they are by the medicine that we give them."

"What has an automobile to do with the confidence of the patient?"

"Well, I'll tell you, my dear, when a fellow is taken down, let us say, rather suddenly, he is so alarmed that he thinks of the doctor who is equipped to get around quickly. Were a doctor to reside next door he would get the call. The M. D. a block away has the next best chance, and the doctor who rides around in an automobile these days is next in order."

"S-p-l-e-n-d-i-d-!"

"A young doctor, one who must build up a practice, is not in a position to bring his skill to the rescue."

"He may not have any skill anyway."

"Who knows!"

"I do."

"What do you mean?"

"But you overlooked the main chance."

"What do you mean?"

"You forget that the possible zone of activity of a doctor is proportional to the square of the distance that he is capable of making within fifteen minutes."

"Where did you get that idea, dearie?"

"At college!"

"Oh! I forgot."

"At college."

"They taught you that instead of cooking."

"No!"

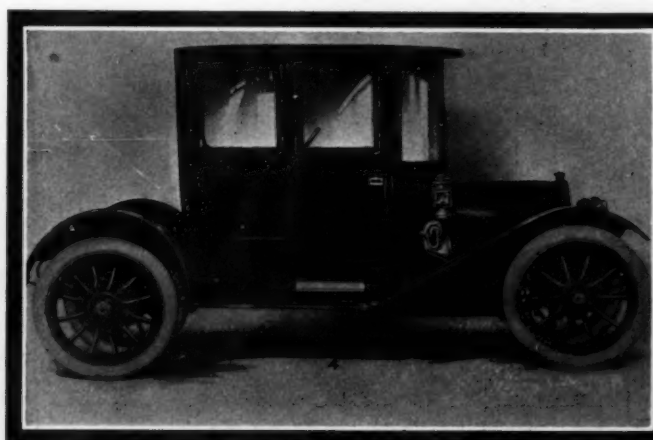


Fig. 4—Chalmers "30" D front coupé



Fig. 5—Cadillac "30" coupé

"How was it then?"

"They taught me that and cooking."

"I am waiting for a display of your skill."

"It is this way: The doctor should reside within fifteen minutes of the patient."

"Rather hard on the patient, don't you think?"

"Depends."

"Go on!"

"But you interrupt me, hubby dear. You are like a woman; you talk too much!"

"Go on!"

"From the time the 'phone rings, considering the fact that you have to get your instruments out, and say goodbye to me, it is fully fifteen minutes by the time that you go a half mile, is it not?"

"Including parting with you!"

"Well! No patient should be more than fifteen minutes' waiting for the doctor."

"Granted."

"You will concede, then, that the greatest area that you are capable of covering on foot is one square mile."

"How do you make that out?"

"Dearie! you just admitted that you take fifteen minutes to cover a distance of half a mile, did you not?"

"Y-e-s, including saying goodbye to you."

"Very good; you can go this half mile in all directions from the house; that means that your radius of action is half a mile; in other words, you go one mile on each leg of a square; that is, you travel one mile squared, reducing it to area, which is, one square mile."

"I have always been a great admirer of your hair, my dear, but now I propose to transfer my affections to your head."

"Stupid!"

"Partial."

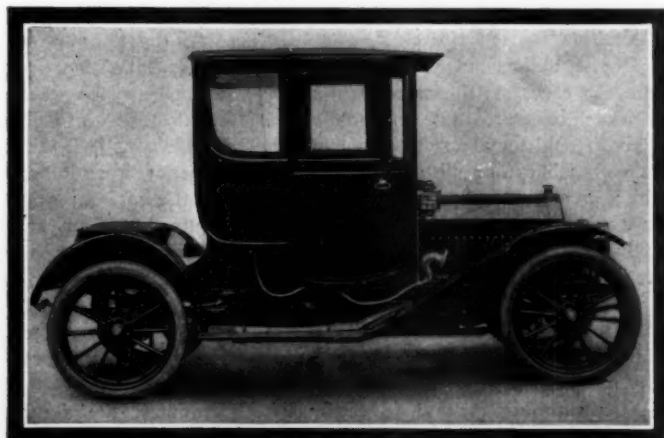


Fig. 6—Warren-Detroit with inside drive and tool chest at rear

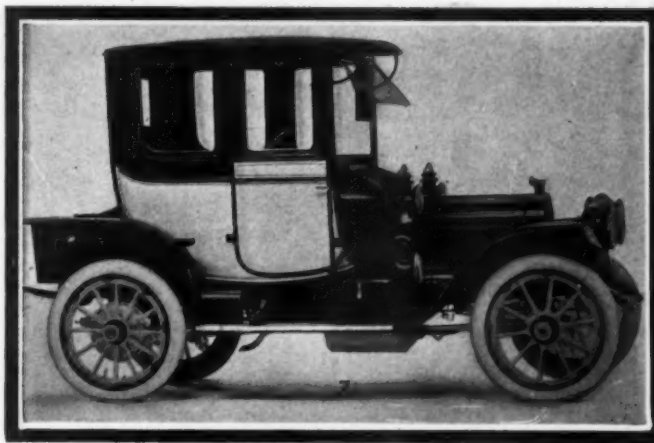


Fig. 7—Packard "Eighteen" fore-door coupé

"But, if you had an automobile——"

"I would not have to walk."

"Assuming that you had a garage in the yard——"

"Which I do not see there!"

"And a car that would crank readily——"

"One that would go when I say 'gid-dap'!"

"And allow you to get under way at a moment's notice——"

"Like a fire wagon!"

"You could go four miles in any one direction——"

"Within fifteen minutes."

"But supposing that we consider that the average travel will be two miles each way, making the side of the square four miles, why, then, hubby, dear, instead of trying to scratch a living out of a square mile of brick and mortar, you would have $4 \times 4 = 16$ square miles of people to draw upon——"

"Kill or cure!"

"Torture!"

Two Heads Are Always Better Than One

"Slow business!"

"Why! hubby, dear, you do not pray for people to get ill, do you?"

"No! But I do hope that some of the sick people will look in the telephone book and see my name with M. D. behind it!"

"They do, no doubt, but the trouble is with the name!"

"How do you make that out, 'sharp-tongue'?"

"The M. D. is conspicuous enough!"

"Oh!"

"What I need is an automobile!"

"Granted."

"I need one the worst way!"

"On credit!"

"Granted!"

"Why do you not get one?"



Fig. 8—Empire coupé with dashboard ventilator

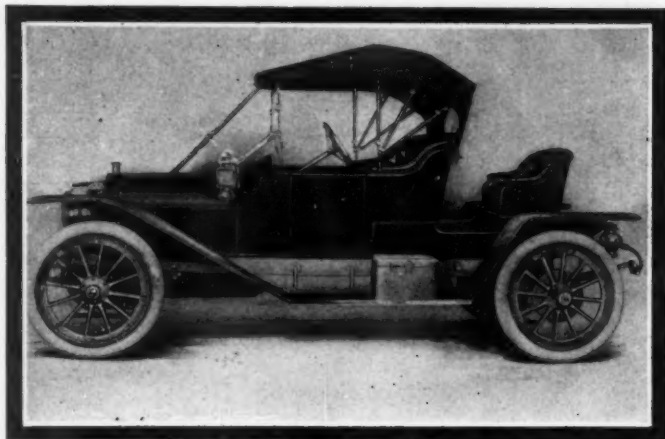


Fig. 9—Selden Model 40 R fore-door with single rumble

"How?"

"Pay for it."

"With what?"

"Money!"

"Where will I get the money?"

"From me!"

"Did I marry an heiress, my dear?"

"Not exactly, but I have \$1,000!"

"What?"

"O-n-e t-h-o-u-s-a-n-d d-o-l-l-a-r-s."

"What a lot of money! Where did you get it?"

"Had it in the bank all of the time!"

"Grew there to your account?"

"No! Uncle Jack (lives in China, you know) placed it to my credit when I graduated. He was on a visit to our house. I made biscuits and honey for tea. Dear old uncle Jack said: 'It was worth a thousand!'"

"The honey!"

"Would you really like an automobile, hubby, dear?"

"You know that I would be frantic with joy!"

"Biscuits?"

"Biscuits!"

Doctor Eager Tries to Purchase an Automobile

"Don't be long, hubby, dear, and be sure and get some style with the automobile; try and save out a little of the money for the rainy day!"

"Bye! bye! sweetheart! It will be as simple as rolling off a log!"

"Logs lay in swamps!"

"Bye! bye!" (Half-way up the block hubby turns and waves his hand.) "And she had that thousand dollars all the time!"

* * * * *

(A fine looking establishment on automobile row—the first

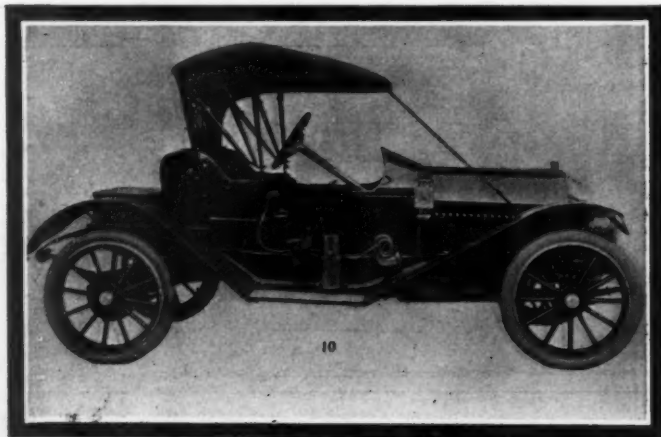


Fig. 10—Imperial with scuttle dash and compact gasoline tank

one that the doctor came to.) "What can I do for you?"

"I am Doctor Eager; I want to purchase a rig for a doctor; it must cost less than \$1,000."

"Right this way, doctor—glad to meet you; fine day; great automobile weather; more people buying than ever before; our make of car is the best ever; will go up a 20 per cent. grade; crankshaft made of cast iron; paint takes 20 coats; radiator is imitation of honeycomb; cooling is thermo-syphon; real hair in the cushions; leather is hand-buffed; tires are non-skid; here is my card; when you come back be sure and call for me."

"What is the price of this automobile?"

"\$2,800 without extras!"

"Good-day to you, sir!" (Doctor makes his exit.)

(A gorgeous place finished in white enamel with a silver stripe; salesman standing right at the door—doctor enters).

"Ah! my good man! What can I do for you?"

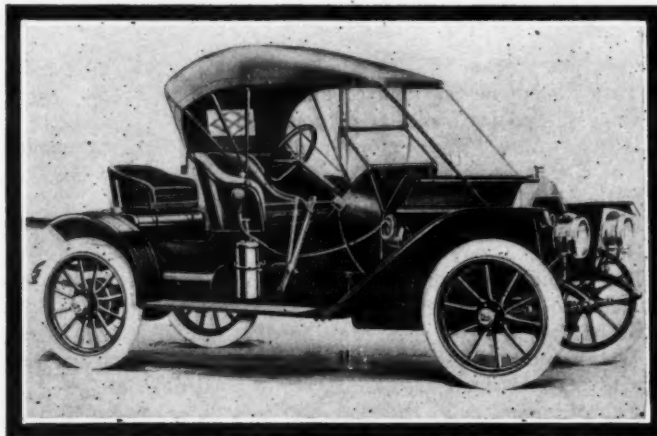


Fig. 11—Ohio doctor's car with complete equipment

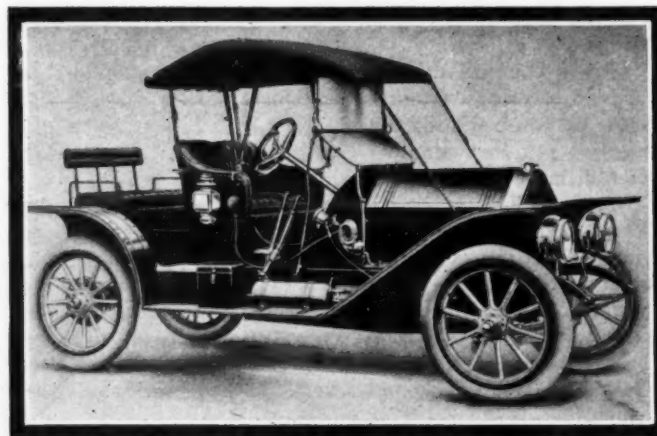


Fig. 12—Westcott completely equipped with double rumble

"Nothing!"

(Doctor makes his exit; looks mad; pulls his hat down over his eyes; races up the street and comes to another place where the indications are that automobiles are for sale.)

"Hello! old man! (slaps Eager on the back). "Got just what you want; bargain; slightly damaged in shipment; don't hurt it a bit; came in yesterday; brand new from the maker; good for touring; make a mile-a-minute; guaranteed; never saw anything like it; thought of selling it to Willie K.; you are just in time; come right this way; price \$4,000; don't advise you to purchase our little car; it is only intended for fool-doctors!"

"If at first you don't succeed try, try again," said Dr. Eager, as he rushed out of the bedlam that attacked him so unmercifully. (Entering the next place.)

After standing around for fully fifteen minutes, the doctor approached a young lady who was sitting at a desk in the corner of the salesroom and, making a courteous bow, said: "Might

I inquire if there is someone present who would be kind enough to tell me about an automobile such as I desire to purchase?"

(Young lady—chewing gum) "Hello! George! Is that you?" (using the 'phone). "To-night! At eight! Same place! Oh! George! How awfully splendid of you! Just think of it! All right, George! At eight! Same place! Oh! George! * * *"

(Poor Dr. Eager; out on the street again.) "What in H—; well, I'll be—what I want is an automobile—what I must have is an automobile; where can I purchase an automobile?" (Enters a place in middle of next block.) Approaching a business-like-looking individual, the doctor presents his card.

"Dr. Eager, what can I do for you?"

"I desire to purchase an automobile; one that will suit me in my professional capacity; it must not cost quite \$1,000."

"Well! Doctor! I will do what I can for you. The trouble is, as a rule, to get purchasers to realize that they cannot harbor

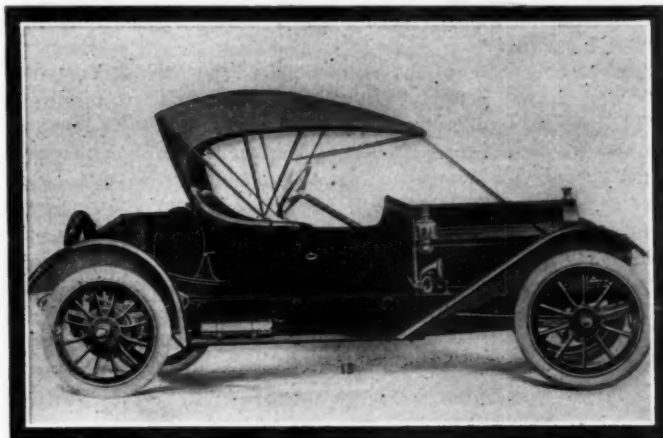


Fig. 13—McFarlan two-seater with fore-doors and demountable rims

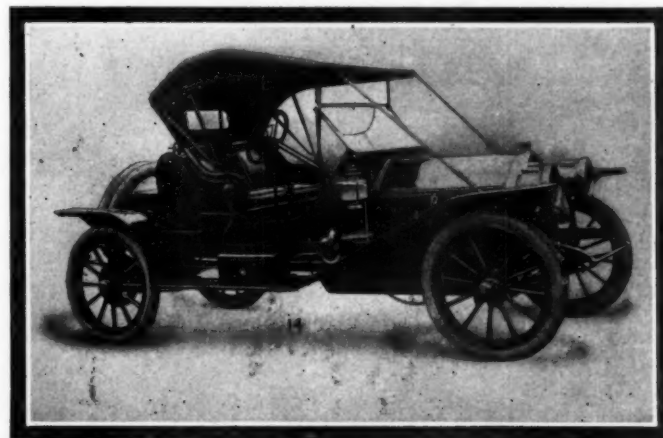


Fig. 14—Parry two-seater with complete equipment

an ideal (as most doctors are capable of doing), and then get it matched up in actual practice."

"I begin to realize that there is something in what you are telling me."

"But, Doctor! if you want me to tell you what to do, if you desire me to participate in your deliberations, in fine, if you really want a good automobile for your purpose for less than \$1,000, just follow me!"

"It delights me to think that I have found someone whom I shall be able to follow!"

"This way, Doctor" (leading the way to a second-hand automobile storage place next door). Bowing the doctor in.

"What have we here?"

"The most complete line of 'used' automobiles in the world."

"But I do not want to purchase a second-hand automobile!"

"Just so! These are merely 'used' automobiles; come this way."

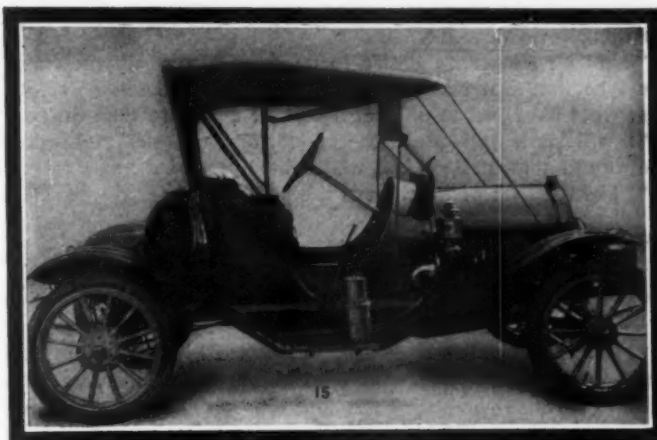


Fig. 15—Elmore two-cycle, two-seated runabout

(Poor old chap, being in for it, decided to see it out.) "You say they are merely 'used' automobiles; what is the difference?"

"Difference! Why, Doctor! I am surprised! What is the difference? You astound me. What is the difference? Just look at that car, will you?"

"Why should I? I want a new doctor's rig!"

"And you a doctor with a big practice. You would go around in a little bit of a dinky rig when you can get this beautiful (almost new) touring car (that will seat seven) for, let me see, er—er—"

"But I do not care what I can get it for—my family has not reached seven yet."

"Come, now, Doctor, that is nothing that you can lay upon the car—"

"True!"

"You are like a whole lot of them that come in here. You think that you know more about automobiles than I do—"

"No, I do not; far from it; what I think that I know is my need!"

"You can go faster and farther—"

"I do not desire to travel fast and I have no occasion to go far—"

"But you might desire to—" Bang! The door closes; the Doctor's coat-tail was the last to depart.

Real Salesman Is Finally Discovered

On the point of giving it up in disgust, with dreams of horses coursing through his brain, with fever on his brow and fire flashing from his eyes, Dr. Eager trudged along up "automobile row." With hopelessness as the spectre that dogged his every footstep, he finally paused for breath, and, upon turning around, to see where he was, cast his eyes upon another place that looked like an automobile establishment. *Sotto voce*, he said: "I wonder if they would refuse to sell me an automobile, too?"

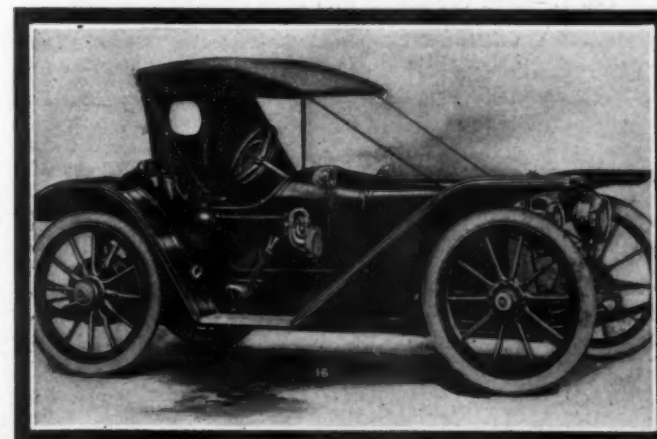


Fig. 16—American fore-door two-seater, with underslung frame

(Entering the door—sees salesman approaching.) "Can I do anything for you to-day, sir?"

"I am Dr. Eager. I desire to purchase a new automobile of the type that will be good for use in my business—a doctors' rig; what have you to offer at a cost of not more than \$1,000?"

"I will show you our make of doctors' rig, sir." (Leading the way to a doctors' rig in a well-lighted part of the salesroom.)

"I like the look of it—what is the price?"

"\$850."

"Is it your most recent model?"

"It is!"

"Does the price include everything that is necessary for me to have to get good service out of it?"

"The price includes two side lights, two headlights, one tail lamp, tool-kit, tire-repair kit, doctor's top, in leather, as here shown; curtains—here they are, and a power pump for inflating the tires, it being the case that doctors cannot afford to take up time on the road any more than is absolutely necessary."

"How are the lights taken care of?"

"The lamps, as you will see by examining them, are electric. A dynamo in conjunction with a 'floating' storage battery, all furnished complete, delivers the current necessary for lighting purposes."

"It is true, then, that I will not have to make a single extra purchase until something has to be replaced as a result of service?"

"It is not true, Doctor. You will have to purchase one extra tire equipment, including an outer case, five inner tubes and a tire cover. You will also have to provide a robe, and I think that you should put a windshield upon the car."

"What will these 'extras' cost all told?"

"\$60."

"What are the main details of this automobile?"

"Here is an exact specification." (Handing the doctor a specification sheet, which he examines closely.)

"Do you guarantee this automobile?"

"Yes—here is the written guarantee."

"Will you take the automobile back if I find that I do not like it?"

"No!"

"What will you do?"

"I will give you the fullest opportunity to examine the car and I will also give you a list of users of this exact model; you will then be in a position to determine for yourself what you will care to do."

"Why would you not take the car back were I to run it for a day or two, and see how I like it?"

"The automobile might not suit you for reasons that would be purely personal. I would have a second-hand automobile upon my hands. I might have to sell it to someone at a much reduced price, or, what is worse, deceive some purchaser into believing that it would be a new automobile."

"Are you not independent?"

"No, I am just!"

"Do you recommend this automobile for my service?"

"No; I do not know what service you expect of it."

"Why, I am a doctor; what I desire is a car that will take me around among my patients. I also desire to have the residents in my vicinity realize that I am a doctor so that I will get the advantage that should be derived from showing that I have all the facilities for quick response to an emergency call."

"Very fine, Doctor! But you have not stated anything much at that. Your advertising problem is one thing, but the kind of roads that you have to negotiate is quite another matter—what must the automobile do?"

"Oh, the roads are in very bad shape, and there are quite a number of steep hills—what has that to do with it?"

"Much! This automobile would not be satisfactory!"

"You don't tell me!"

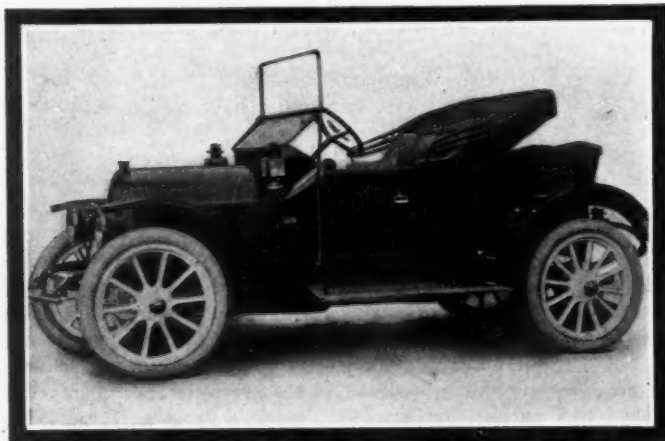


Fig. 17—Moon two-seater with double rumble fore-door

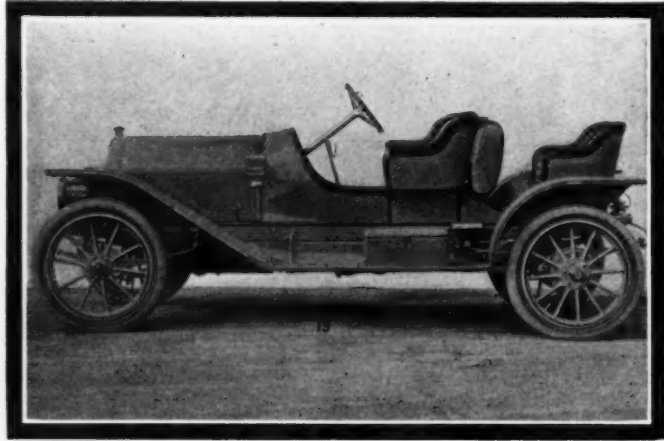


Fig. 19—Inter-State two-seater with single rumble

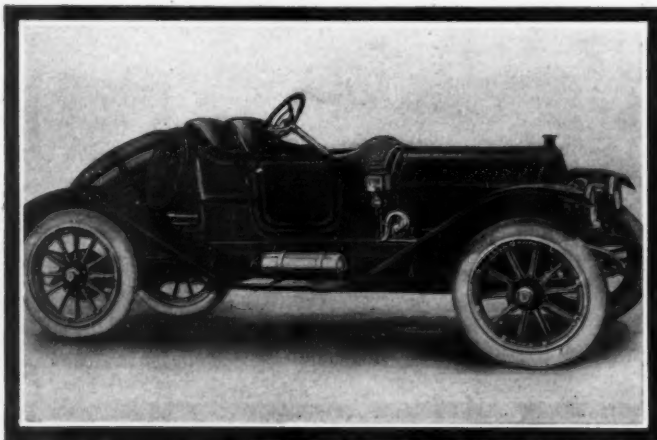


Fig. 18—Vellie two-seater with gasoline tank and double tire carrier

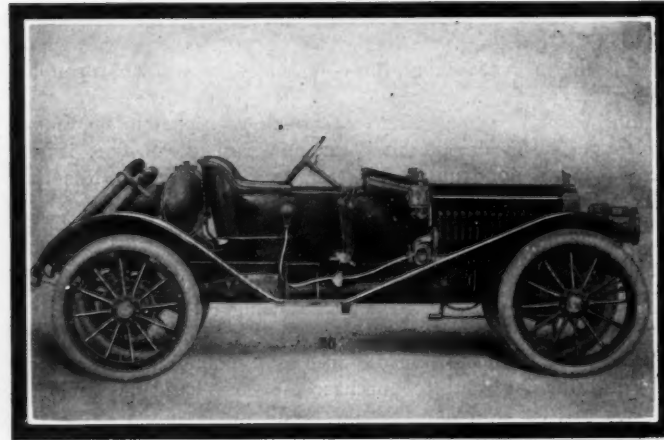


Fig. 20—Maxwell Model G A roadster of the torpedo type

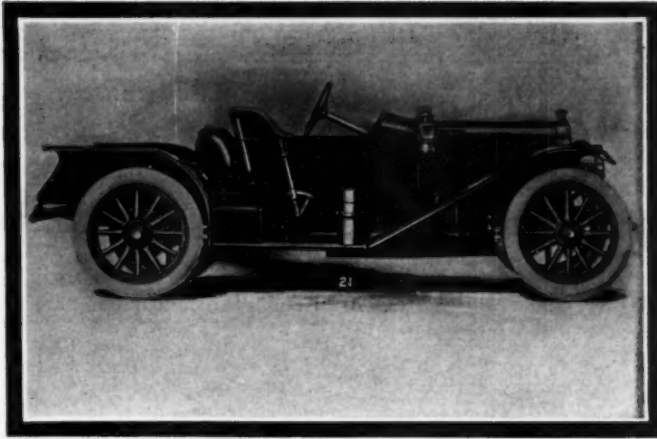


Fig. 21—Speedwell fore-door two-seated runabout

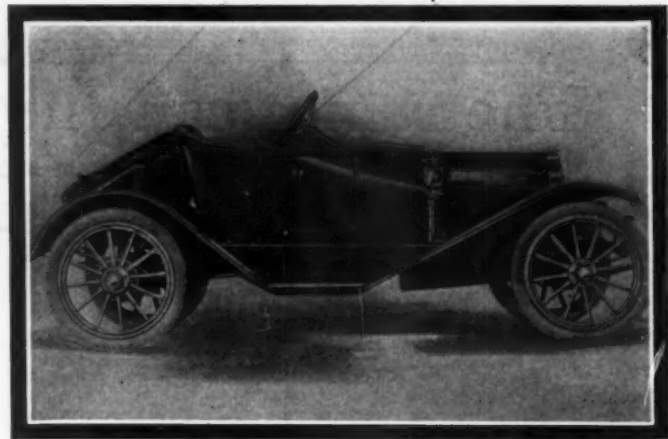


Fig. 23—Overland fore-door two-seated runabout with smooth sides

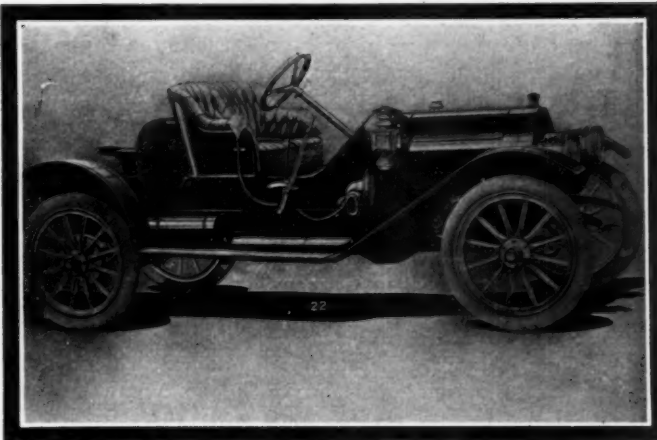


Fig. 22—E-M-F "30" two-seated runabout

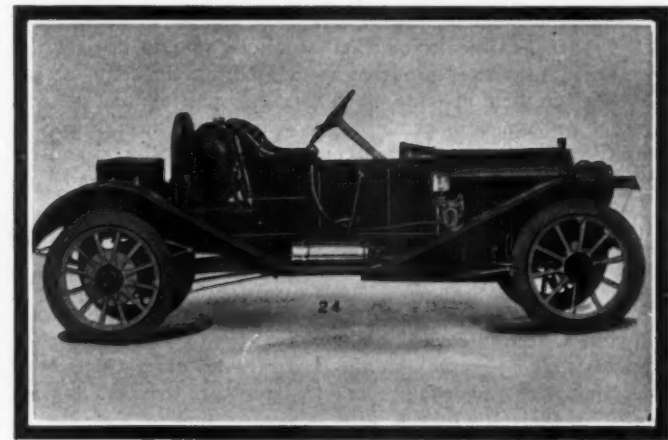


Fig. 24—Marmon "32" fore-door runabout, with compact tire carrier

"Yes, Doctor! This automobile is geared for relatively high speed. This is another way for saying that it would be at a great disadvantage under the road conditions that you name."

"What is to be done?"

"Where do you live?"

"On the North Shore; at L——"

"I know that country very well."

"What does it signify?"

"It would be necessary for me to order from the factory a car with a higher gear ratio, say, 4 to 1."

"How long will it take you to get a car so equipped?"

"Perhaps thirty days!"

"It is a long time!"

"True. But not so long as the time that you would have to put up with a poor-performing automobile were you to be so unfortunate as to acquire one."

"I will enter my order."

"No, don't do that. Here is a list of ten doctors who are using this model of automobile. Call upon each of them; they are all within a day's travel; see what they have to say about it. In the meantime I will have a car undergoing preparation and in this way there will be no loss of time to you."

"Thank you. I will take your advice. Do you sell many automobiles?"

"All that I am able to get from the plant!"

Newmotor Called Upon the Repair Man

Newmotor, having purchased an automobile, realizing that he was poorly equipped to cope with some of the problems, concluded that he would see the repairman and ascertain from him what should be done to keep out of trouble. The repairman was a decent fellow and, beyond giving Newmotor a scare, failed to score heavily.

(Newmotor enters the repair shop.) "Good morning!"

"Good morning!"

"Will you have a look at my motor?"

"Yes; where is it?"

"Outside the door."

Repairman put on his hat and went outside with Newmotor. After raising the bonnet and taking a good squint at the motor as it rested quietly in the bowels of the chassis, he went around to the front and cranked for a moment, with the result that the motor went about its business like a veteran. Listening for a while, and after making another round to see the motor from all points of view, Repairman turned to Newmotor and said: "What seems to be the matter with the motor?"

"I do not know!"

"Does it run badly?"

"No!"

"Have you had any trouble with it?"

"No!"

"Well! er—er—Oh! I understand!"

Newmotor looking relieved: "Do you?"

"Yes! You just purchased the automobile!"

"Why, yes!"

"You suspect that something is the matter with it?"

"Yes!"

"Leave it with me—come around in the morning." And Repairman returned to his work.

Newmotor was promptly on hand in the morning. Repairman said: "She is working all right now—we had to nurse her all night! Jump in and take a run around the block."

Newmotor did. Coming back he said: "Never worked so fine before; what did you do with it?"

"Nothing! The next time that you come around here looking for trouble I will give it to you—take my advice and keep away from repair-shops until you have real cause."

"The American Invasion" Regarding the European— and Especially the German —Fear of an Influx of American-Made Automobiles and What There Is to It

EUROPEAN automobile manufacturers, dealers and publications at the present regard the American industry with a great deal of respect, if not with fear. As they read statistics and stories about American factory and trade conditions they cannot but think of the time when American automobile plants will turn out more motor cars than their country can possibly use at that time, and when, in consequence, the surplus of their production will be "dumped" on the European automobile market, thereby endangering the existence of Continental makers, especially those in Germany.

If it is true, as they think, that American automobile factories work with an average profit of from 15 to 25 per cent.—as the story goes on the other side—then it is quite possible that at some future time American producers may underbid their European competitors in the latter's own countries. A really good and reliable car of 30 horsepower cannot be bought for less than \$4,000 in Germany. The best of steel is used in the chassis, the axles and bearings of the best automobiles made in Germany. The steels made by Krupp, Bohler, Poldihuette and Bismarckhuette are at least as good as any steel produced to-day, and are made at sufficiently low cost to allow their makers to profitably compete with American steel.

As to working conditions, the factories of Benz, Opel, Mercedes and others are equipped in an up-to-date manner, and the number of their laborers is little more than that of the automobiles produced per year. The output is always sold, as the factories keep but a limited stock of automobiles, replacing only as many cars as are being sold out of their stores. Wages are certainly not higher than in America, while the average price paid for power in Germany is at a somewhat higher level than it is in this country.

Germany has about 30 automobile factories, i. e., about 7 1-2 per cent. of the number of American establishments, with a corresponding output as compared with the American product. Germany's population amounts to more than 65,000,000 people, or 73 per cent. of that of the United States, so that the number of automobiles produced and sold per capita is ten times greater in America than it is in Germany. Now the average economic power of the German individual is certainly not less than half that of the resident of the United States, and if this is true Germany could absorb five or—to take a still more conservative figure—four times as many automobiles per year as it uses now.

The American automobile maker, selling in Germany a good American car at an average American price, and by means of American methods, will have success there in at least the same measure as other American manufacturers have had before him; for instance, the International Harvester Company, the Remington, Underwood and Oliver typewriter companies, not to forget the makers of machine tools, especially Brown & Sharpe and Pratt & Whitney.

But unless the German buyers are given exactly the same facilities as are extended to American customers they will not become buyers. The facilities referred to are:

1. The automobile trader has to establish local agencies bringing the product to the prospective customer. Many firms in Germany as well as in Austria still cling to the idea that a man who wishes to buy a car wishes to buy just the car made by the makers in question; while the truth is that the prospective buyer has but a dim, dream-like vision of an automobile before his mental eyes and it is left for the seller to set his goods in the place of this ideal.

2. There must be a central agency whence all repair parts may be ordered and delivered within just as short a space of time as is customary in this country.

3. The agents must be Americans who do not give up or lose their American character in a foreign country; it is just the combination of shrewdness and open-heartedness as found in the American which appeals to Europeans, who hardly understand but nevertheless admire these qualities. Whether or not an agent possessing these qualities speaks the language of the country perfectly matters little. It may even be said that such a defect—so long as it does not form an actual obstacle to the normal development of relations between buyer and seller—argues favorably for success in most parts of Germany and Austria. For even though the irregular developments of the American stock and money market and the monstrous tales about America which are handed to the European public by their newspapers have somewhat scared them, in plain, sound business the American element is still trump there.

Of course, there are some differences between the business conditions as they prevail in Germany on one hand and in the United States on the other. But these differences are neither fundamental nor unchangeable, as some students in economics would make us believe. Agriculture, for instance, in Germany is in the hands of peasants, not farmers in the American sense. Farming in this country bears a great many characteristics of industry, whereas in Germany, as in most parts of Europe, the agricultural work is taken care of by an estate of men using methods well defined and developed through an evolution of a thousand years. Nevertheless, German agriculture is also assuming more and more the looks of farming as it is done in America; for some decades the flow of population from the farm to the cities was noticed in Germany as it is now in the United States. However, the statistics of the last few years show a reversed tendency for Germany, and at the same time an increased use of American agricultural machines and a betterment in the situation of German agrarians as well as that of German farm laborers. The modernization of German agriculture and the increase of wealth among those connected with it are closely related to each other, and as soon as this relation will be clear to the peasants themselves they will be still more inclined to take the application of the gasoline engine incorporated in a motor car.

To make the German farmer see this side of the matter is another mission which cannot be filled by any people as well as by Americans, using the methods outlined above. For the character of all Germans, whether connected with the industries or with agriculture, is essentially the same, especially since during modern times German agriculture and industries have become closely interrelated. Germans, as a rule, are hard to convince, but it is only a question of time when they will yield to reason, and to have time means but to have monetary power, which to-day rests in the hands of Americans. Hence it is left for them to overcome the resistance which is barring the progress of the automobile in Germany and to reap the resulting harvest.

WHAT THE INVADER SHOULD KEEP IN MIND—

That it is necessary to keep the best foot forward.
That the country invaded will naturally be suspicious.
That there should be left no ground for suspicion.
That the shipments should conform to the custom regulations.
That attention to the smallest detail pays handsomely.
That catalogue sales are never made in a foreign country.

"Ancient" History

Very Interesting Reading in the Light of Present-Day Knowledge

Although Penned Less Than a Decade Ago, Much of the Following Makes

THE time will come when every man will count the automobile among his possessions, as he now lists the horse as a part of his chattels. Everything has a beginning. As strange as this statement may sound, the automobile had a beginning. To look upon the mountainous piles of machines to-day suggests the idea that, in making the world, God stocked it with hundreds of thousands of automobiles, in the same manner that He provided the trees and rocks and water as an indispensable part of the virgin equipment at the dawn of Creation. But it is a short cry to yesterday.

It would be interesting to know definitely how many automobiles have been manufactured and put out of commission since the horseless carriage began to assert itself about ten years ago as a factor in the industrial world.

Just as a reminder that one has but to scratch the skin of yesterday to find an unsophisticated people, here is a little item that went the rounds of the New England newspapers in the early part of 1902, illustrating the state of some men's minds at that period relative to the advent of the automobile:

"Brockton, Massachusetts, automobilists complain bitterly against a law recently passed by the State (Massachusetts) Legislature, restricting speeding within the city limits to ten miles an hour. Owners of automobiles have been looking up the records, and they find that a man can run that fast."

The term "chauffeur," meaning a mechanic who heats something, like a fireman or stoker, and not an easy word for Americans to wrap about the tongue, applied to only 800 of this class of men in 1900 in the State of New York, while there are over 25,000 registered chauffeurs in the State at the present writing.

If history is to be believed, the people of America really began to take the automobile seriously for the first time in 1902, when the members of the then recently organized Automobile Club of America distinguished themselves on Decoration Day in New York City. Upon that occasion the Club "availed itself of this opportunity for a double trial of its vehicles." The first day was devoted to endurance trials; the second day to speed-tests of machines. "The vehicles (note that no definite name had been conferred in general upon any particular machine, except that now and then one was designated as a carriage), were drawn up on both sides of Eighth street, with the leaders ready to swing into Fifth avenue at the word. Every car was to make a continuous run, except for tire troubles, police rules, timid horses, etc." The course was "laid out on the basis of average speed of 15 miles, the legal limit in Connecticut."

So prophetic had the editor of THE AUTOMOBILE become, relative to the future of gasoline as the coming propelling power of the automobile, that in 1902 he caused a series of essays to be written by experts under the title of "The Gasoline Vehicle," publication of which he began in his magazine in June, and ended in December of that year. The sub-captions under which the essays were printed are as follows: "French versus American cars"; "Combustion in high-speed motors"; "Balancing the high-speed motor"; "The mechanical problems of high-speed motors"; "High speed and valve design"; "Vaporizers and carbureters"; "Ignition systems; The contact-spark"; "Ignition systems: The jump-spark"; "Governing and motor control"; "Caring for the high-speed motor"; "Speed-changing systems"; "Transmission systems"; "Running-gears: Reach and reachless"; "Steering gears"; "The running gear: Frame and axle"; "The circulatory system."

That the editor was correct in his prophecy may be read in

the ensuing excerpt from an editorial discussing the motive power of the contesting cars in one of the early "endurance runs," which appeared in his magazine about the middle of October, of the same year: "It is a fact worth noticing at this interesting stage of development, when the motor car is recognized as a practical pleasure and business vehicle, that the one source of power in this, as in last year's test, is gasoline. Every car relied on this invaluable agent for its life and motion. Even the single one official entry under the head of 'Electric' carried an explosive motor as its prime source of power."

Commenting upon motive power in general, the editor had this to say: "The development of the gas vehicle in this country was for years impeded by a foolish adhesion to horse-vehicle outlines. These 'horseless carriages,' better named 'shaftless carriages,' have happily passed away and an automobile is now frankly accepted for what it is: A road-vehicle. This stage was reached long ago in France, but it is only within the past twelve months following the fashionable craze for imported cars that it has been decisively approached in this country; and even now, particularly in the West, there remains something to be done in this branch of popular education. From its inherent limitations, the gasoline motor lends itself with difficulty to 'shaftless carriage' construction. It is heavier than the steam engine; it requires—which the other does not—a system of change-speed gearing between itself and the driving-wheels and access to it on the part of the operator is more frequently necessary."

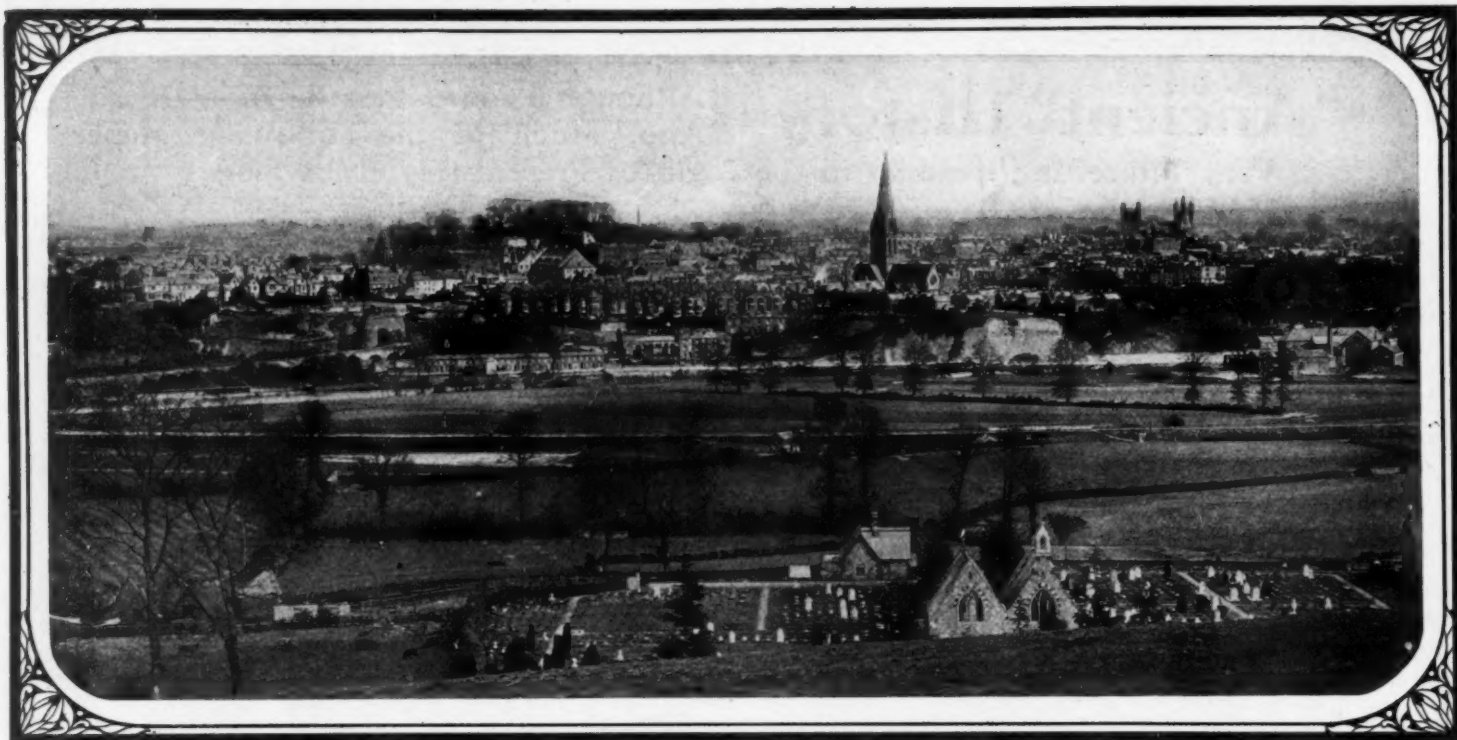
At that time public feeling as to the indiscriminate use of the public roads for racing must have been quite pronounced, for in June, 1902, this editorial expression was published in THE AUTOMOBILE: "The condemnation of speed-trials on the road, which presumably includes road races of all lengths, is a concession to public opinion, as well as to sentimental clamor on the part of the daily press. It is possibly justified under the circumstances; but if rigidly adhered to, throughout the country, it is liable to have a distinctly detrimental effect upon the automobile industry."

The first recorded newspaper use of the word "chauffeur" in this country occurred in 1902, when Recorder Goff, of the Court of General Sessions in New York City, handed down the decision that in his opinion the City Magistrates have not the power to impose fines on an automobilist and chauffeur who are accused of violating the law with regulation to speed.

According to the statement of an expert (?)—he was becoming numerous just about this time—part of the trouble experienced with ball-bearings could be avoided by the simple precaution of renewing the balls periodically, "say once in a thousand or two thousand miles."

In the course of an editorial which appeared during the latter part of June "the gas engine—so-called—is yet but little known to the public. There are three other terms which are practically synonymous with the broader meaning of the 'gas engine,' and these are the 'hydro-carbon,' 'explosion' and 'internal-combustion motors.' When it comes to immediate details of operation (the expansion of the resulting gas forcing the piston outward), which distinguishes one type of explosive motor from the other, a new source of confusion is found." Which goes to show that technical terms were as confusing in those days as they are in these.

Something which appeals to the reader as funny happened about this time in Kenosha, Wis., where the considerate people started "a school for familiarizing horses with automobiles."



The Ancient City of Exeter, with the Venerable Cathedral Towering in the Middle Distance

EVERY season witnesses the development of a larger field of usefulness for the automobile. It has passed from the mere pleasure vehicle into an agricultural and commercial mechanism. The use of the motor car in the political campaigns of the larger cities has become commonplace, and it does not need the dashing spirit of a Roosevelt to give to the machine its picturesque effects in a civic canvass. In addition to the use of the machine to whirl the candidate or political orator from one part of the city to the other, it has proved to be valuable in the transportation of voters in those political districts of New England and adjacent to the Hudson River where even the rural nature of the particular sections of country does not lead to widely scattering population. In England the political orator tours the excellent roads of the countryside in his motor car for the purpose of addressing the voters in the village square, and the *London Times* in a recent article describing the election methods of both parties, made it clear that the gardeners and butlers of the great estates were transported by their Tory masters to the polls in cars costing five and ten hundred pounds. Thus it is evident that the machine is not the mere pleasure vehicle of the rich, but it is the mechanism now being used to an increasing degree by those who seek to give stability to existing institutions. The Roman proconsuls may have delighted their poorer followers with games in the public forum, but it has remained for the twentieth century age to witness the carriage of the enfranchised to the polls in luxurious horseless vehicles. Thus the motor car has entered into the very arteries of commercial and political life in both the Old World and the New.



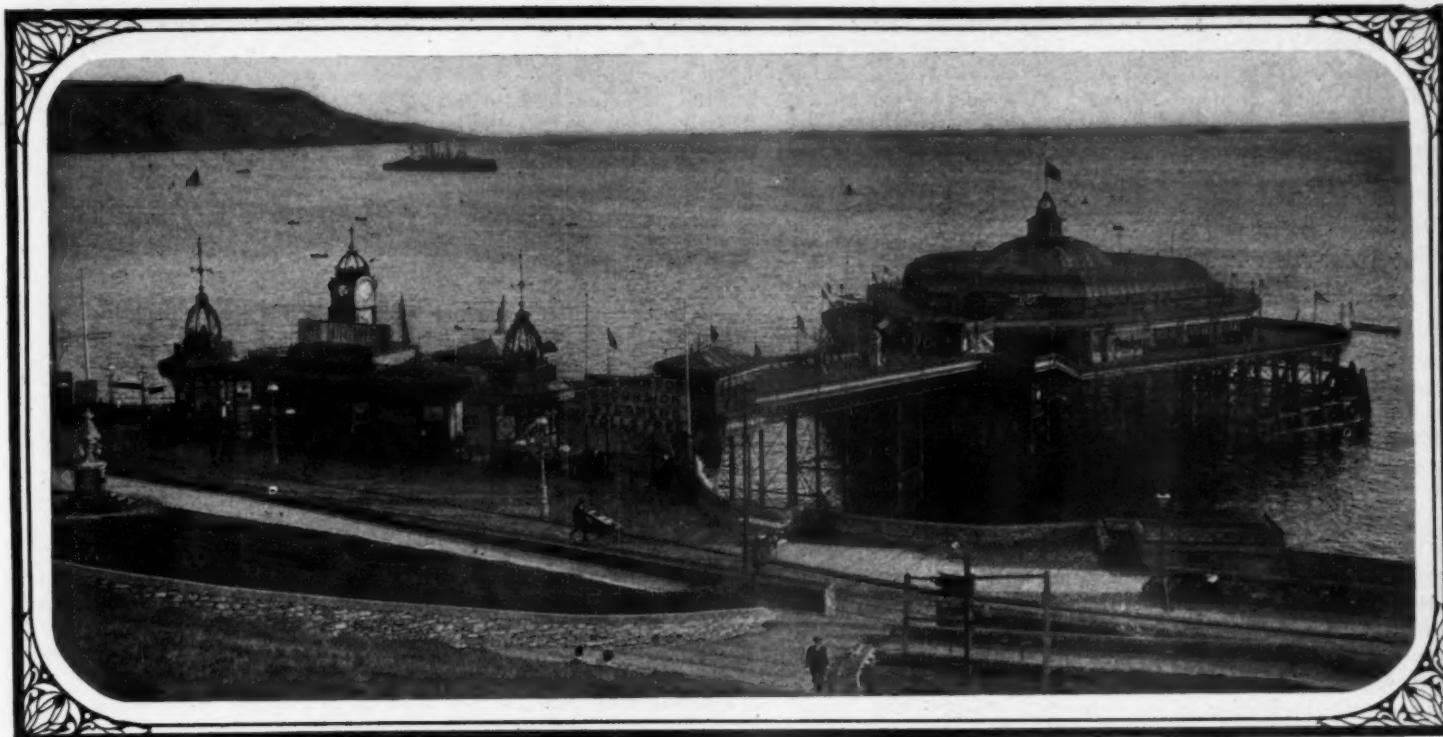
The usefulness of the automobile for campaign purposes was impressed upon the writer during a recent tour of Devonshire and Somerset. The machines in this instance played an interesting part

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Impressions Gathered During Through South

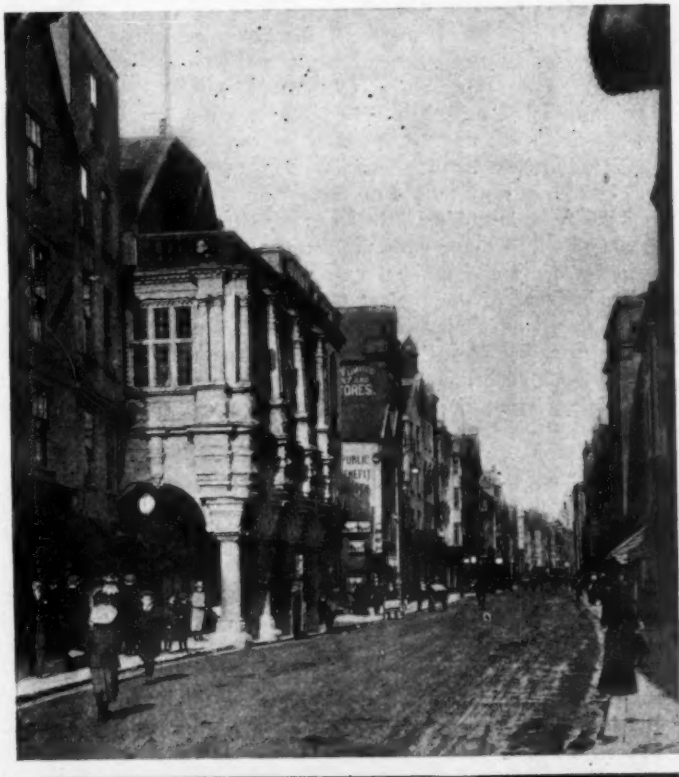


The Old Dutch House in Wine Street, Bristol



Plymouth Hoe, Whence the "Mayflower" Sailed with its Cargo of Pilgrims in 1620

ing a Gasoline Campaign west England



Looking Along High Street, Exeter

in the cementing of those imperial ties which bind Englishmen together throughout the Empire. The Bristol Chamber of Commerce had sent a delegation to Canada during the latter part of the summer for the purpose of investigating trade possibilities throughout the Dominion. While those delegates toured such cities as Montreal, hilly Quebec, delightful Toronto, and prairie-like Winnipeg, they were astonished by the length and breadth of a country which required successive nights in a Pullman sleeper in order to traverse its extent. In fact, the extent of country was so enormous that in the summary of the report which the delegation submitted to the Bristol Chamber of Commerce "spent the night on the train" was one of the frequent subheads of the chronicle. But if the delegates from Bristol were impressed by the area of the Western Canadian prairies, the organization of an expedition by the Canadian Northern Railway to tour the West of England did in turn enable a number of Canadians and Yankees to view the achievements of twenty centuries of history within an area of country that can be tucked into one corner of Manitoba or Alberta. While the delegates from Bristol marveled at the vast stretches of steel crossing the unoccupied plains of Western Canada, the members of the Canadian Northern expedition did in turn wonder at the remarkable uniformity of improved highways which traversed those counties of Devonshire and Somerset, rendered delightful by the hand of God and made keenly interesting by the evidences of historical effort and constructive architecture adding to the scenery on either side of the highways. The writer spent a week in Devonshire and Somerset as a member of the Canadian Northern expedition and in a trip of 300 miles by motor car never once was it necessary to leave the improved highways, many based on foundations laid twenty centuries before by the slaves of Caesar's Legions.



But the reader does not share the interest of the writer in the imperial aspects of this interchange of visits between the delegation of the Bristol Chamber of Commerce and the representatives of the Canadian Northern Railway. It suffices to say that it was the purpose of this expedition to stimulate a twin interest in the scenic beauties of Western England and the fertile lands of Saskatchewan and Alberta. The prospective settlers of the wheat lands of Western Canada are not to be found through the columns of an automobile journal, and the nature of this expedition is only interesting here in view of the fact that it demonstrates the utility of the motor vehicle in reaching a larger number of people within a given length of time. The business aspects of the Canadian Northern expedition were somewhat overshadowed by the effort of loyal Englishmen, on that as on other occasions, to show their appreciation of that blood which is ever thicker than water. Thus there were words of greeting from the Lord Mayor of Bristol and Wells and from the representatives of Plymouth and Exeter; and both the importance of the junket and its increased possibilities were evidenced by the number of newspaper men who joined the expedition in automobiles secured by their respective journals. As a matter of fact the success of the Canadian Northern expedition in touring Devonshire and Somerset afforded ample proof of the place which the automobile is to occupy in the colonization campaign of the future. Not only would it have been impossible to cover so many districts of these two interesting counties within a week by means of the train, but the inclination to do so would be weak in any event, because observation from the side door of a coach loses its keenness after a couple of days of trial. But in a campaign of this character the automobile is of significant value because it enables the tourist member of the expedition to divide his time somewhat proportionately to the significant features of the scenery under observation. In other words, having an automobile at hand the tourist is not compelled to spend three hours in visiting a certain cathedral or battlefield, which in fact it might be necessary to consume were he to make the customary visitation between train schedules. To land in England from a foreign shore on one Thursday morning, to attend three formal receptions, participate in four banquets, enjoy half a dozen luncheons, attend two theatrical performances, traverse such counties as Devonshire and Somerset, including Bristol, Wells, Glastonbury, Exeter and Plymouth, and to receive and make formal acknowledgment of the speeches of greeting made at these points and then to rush down to London, crossing the city in a motor tram and be aboard the same boat for the St. Lawrence Valley on the following Thursday afternoon, is only possible through the systematic use of the automobile running along improved highways. This is just what the Canadian Northern expedition accomplished, and in view of the fact that the achievement was due to the effective organization and manipulation of a score of automobiles it is certainly worthy of mention in these columns apart from the attention which should be given to unique scenes of interest throughout the trip.

The cities of Devonshire and Somerset are becoming the axes of the automobile tourist traffic of the west of England. The gasoline tourist is content to follow the highways of Caesar's Legions. Thus all those who understand the science of carburetion and the mechanism of improved clutches may not appreciate the fact that successive warriors have sought to inflict their wrath upon this region.

Over this portion of the West of England William the Conqueror passed with his troops, and a report found in the Deanery of Old Exeter Cathedral says he held a conference there one night to determine whether or not he should go forward to the mastery of England. In the early days of the seventeenth century the merchants of Bristol waxed wealthy out of the slaves and slave products of the West Indies and thus in turn invited the money lust of the Spaniards. It is not surprising, therefore, that the Spanish Armada steered for Bristol Channel. But the citizens of Bristol, Plymouth and Exeter to-day offer a kindlier welcome to the gasoline invader than did their ancestors to the

warriors of Caesar and the prospective Spanish pirates. The fact that these forces planned to pass over the highways of Devonshire and Somerset has pointed the way to the automobile tourist. Not only do these facts of history lend an additional interest to the scenic beauties of the country, but it is a fact that those who motor are following the easiest means of access into and over a delightful bit of Old England. One need not be surprised, then, in finding that the modern millionaire is spending his Summer days driving over these highways which received their foundation from the hands of the Romans and appealed to the stable Dutchman.

The automobile is of distinct value to the tourist, both within and without such cities as Bristol, Exeter and Plymouth. It is only the gasoline machine which enables an observant tourist to whirl within an hour from the enlarged docks at Avonmouth to the scene which presents itself from Clifton suspension bridge where the Bristol channel is seen on one side and the trees which cover the rising ground of the ancient Roman encampment may be viewed on the other. Cabot Tower, which seems a long way from Clifton Bridge, is only a short distance in a machine which in whirling over the city passes art galleries, museums and the homes of Burke, Chatterton and Southey. Bristol has taken a new lease of life and in a city famous for its Quaker establishments there is now located automobile and aeroplane works whose testing grounds are the very fields where Roman troops once camped. But the visitor to Bristol should not neglect the automobile trip to Berkeley Castle, the seat of a family which owns large estates in the vicinity of Hyde Park in London. The seventeen-mile jaunt over the macadamized road is worth while, not only for the purpose of viewing the castle where King Edward the Second was starved in a dungeon, but it affords an opportunity for those interested in the back-to-the-soil movement to witness the conditions under which the English common man does or does not work. Glastonbury, the most ancient seat of the church in England, and Wells Cathedral, one of the most significant specimens of architecture in ecclesiastical luster, may be readily reached by automobile from Bristol. In Glastonbury on a Summer's day a hundred automobile tourists stop at the quaint village inn where London coachers have been entertained since the fifteenth century; and here, at a point where the drivers dined while the coaching horses were changed, the tourist may secure an enjoyable lunch while the driver replenishes the gasoline supply. There are cathedrals and cathedrals in England from York and Durham to Canterbury and Ely, but those who are desirous of using the automobile to really see what there is to see must tour to Glastonbury as the fountain head of the religious architecture of England.

The tourist may take a morning train from Bristol to Exeter or he may make the drive between the cities by machine. Exeter is a city of past and present history. It possesses twenty centuries of continuity, while the modern automobiles line the narrow street in front of the ancient Guild Hall the Town Clerk in the assembly room is displaying a municipal charter granted in the year 1200. The Royal Clarence and Rougemont Hotels are now the automobile centers where once coaching parties tarried for the night. These hostleries are of unique and historical interest, both because of the part they have played and are playing as centers of coaching and gasoline traffic and because of the notables who have sojourned within their portals. Then there is Exeter Cathedral and the Deanery of Exeter, not to mention the Dean himself, who is a classical institution. Over on the other side of the town Rougemont Castle, built by William the Conqueror, merits the attention of the tourist, and along High Street, which is the central thoroughfare of Exeter, the variety of architectural display recalls the successive generations who have lived and built in this venerable community. High street is long, narrow and withal keenly historical. The highway is one of the institutions of England. It is a city pride. That was evidenced when a part of the population objected to granting a franchise to the company that wanted to run tram lines through the town. Some residents of the ancient city declared that a

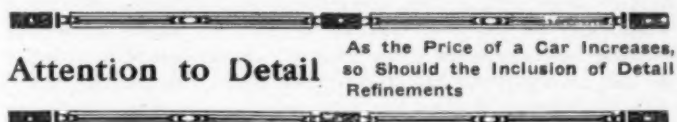
noisy tram had no place in such a thoroughfare; others asserted that the coaches had run for fifteen successive centuries on High street and it was now no time to discourage the women who drove into the town for their morning shopping by permitting a method of traffic tending to scare the horses of the good ladies; but the spirit of modern progress prevailed and now through High street passes the double-decked tram car. Indeed, the plump horses of the Devonshire ladies seem to have become familiar with the noisy tram and to-day they stand without hitching while the ladies do their shopping in easy-going fashion; and as one city father explained, whether or not the horses stand hitched or unhitched, it is a fact that the motor car has taken the place of the squire's good horses. This does not mean that the horse will ever disappear from the highways of Exeter, but it implies that in other towns, as in Exeter, the mechanism of travel must conform to the spirit of the age. This is another evidence of the part that improved transportation is playing in the development of the whole population. While many of the city fathers opposed the coming of the tram because it would disturb the horses of the shoppers, and because the streets were really too narrow, it must be remembered that the women who come in from the country shopping of a morning are of the well-to-do class and the absence of the tram placed a burden upon the poorer citizens. Now the tram passing through High street provides a ready means of transportation for the working population, while the well-to-do have invested in automobiles. This means that both the middle classes and the well-to-do are moving along the narrow highways more rapidly and the danger and vexation of congestion are diminished. This is only one of the many lessons which the coming of the automobile impresses upon the mind of the tourist observer.

Improved highways lead into and out of Exeter in all directions; not the least interesting roadway is the one going over to Escot, the seat of Sir John Kennaway, and then on to Ottery Street, Mary's Church and Chanters House, for many years and now connected with the famous Coldredge family. Then it is an easy jaunt over to Sidmouth-on-the-Sea, once the home of the Princess Victoria and now one of the best-known hotel centers of the West of England. Now we are in the land of Raleigh and Drake, and those who travel by gasoline over old lands may marvel at the achievement of these men who led in the journey to the new lands by sailing vessels. Hayes Barton was the birthplace of Sir Walter Raleigh and the five-century-old house came into view as the line of automobiles rounded the curve from the village; it affords one a clear insight into the domesticity of the fifteenth and sixteenth centuries. Nutwell Court is the seat of the Drake family and Buckland Abbey contains many interesting relics of the famous Sir Francis. Then it is possible to continue the gasoline tour to Totnes. It is one of the quaintest towns in Devonshire and perhaps one of the most ancient in view of the tradition that Vespasian landed there on his way to the siege of Exeter. Dartmouth should be the next station on the gasoline railroad, both because of its present and past history. Gilbert, Drake, Raleigh and Davis have associated their names with the town and for centuries the naval students of England have been trained at the Dartmouth Naval College. The adaptability of the automobile is shown by the fact that it enables the tourist to cover the site of Roman, Norman, Dutch and English achievements within a three-day trip. Railroads may go faster, but the delay in waiting for the next train is a greater disadvantage than proceeding by a more circuitous overland route.

But the Yankee automobile tourist cannot afford to miss Plymouth in a trip through the West of England. Those who tour New England do not fail to make the trip from New Plymouth up the coast of the Old Bay State to the North Cape. But seeing the new without the old leaves a void. If it is proper to make an American Mecca of Plymouth rock, it is equally important to visit Old Plymouth, associated with the outgoing of our forefathers. And those who have been pleased with the coast of the Old Bay State will be delighted with the harbor of Old Plymouth as they pass along the Hoe in their gasoline

vehicles. In capacity and beauty Plymouth harbor is unsurpassed on either continent. It has won the approval of the scenic artist and the naval engineer. There the fleet sets forth and there the Dreadnoughts are frequently anchored.

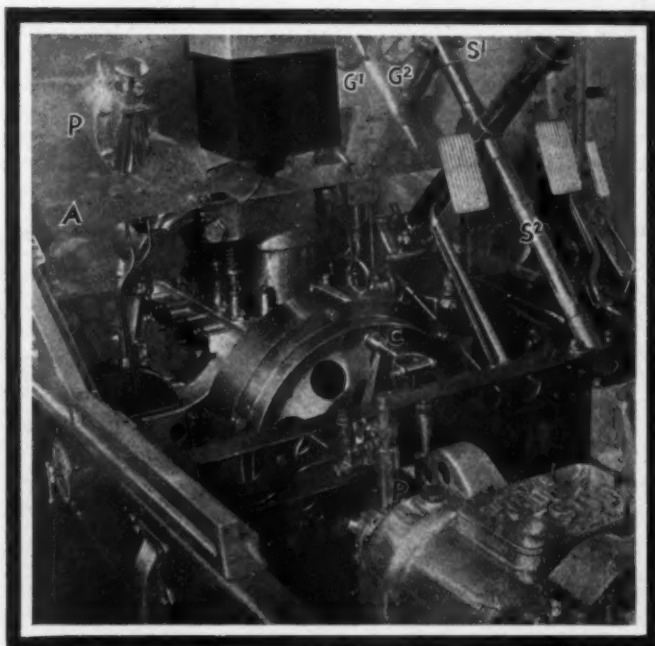
Now the incidents of this tourist and colonization campaign conveyed their lessons. The gasoline caravan moved with military precision, thanks to the remarkable organization perfected by the chairman of each town. The writer had some notion of what may be accomplished in the course of a day's work through the use of his roadster on American soil; but the excellence of the highways, the continued interest attaching to the passing scenes, coupled with the remarkable organization perfected through the use of the motor cars, will not be forgotten by those who participated.



Attention to Detail

As the Price of a Car Increases,
so Should the Inclusion of Detail
Refinements

AN example of detail refinement will be seen in the accompanying illustration. The car, an English one, is made only in one model; consequently the multiplicity of parts that a manufacturer is troubled with when he tries to turn out a model for every requirement is avoided. At the left side of the picture will be seen the tap for the gasoline control. Every time the brake or clutch is operated, the driver uses the steering wheel to a certain extent to form a leverage, and this rocking motion as well as the side thrust the pillar receives while rounding a corner fast must in time have a detrimental effect on the parts if some means is not provided for strengthening. The scheme here depicted is simple, and as the foot of the tube S₂ rests on the frame cross member one is not dependent upon bolts passing through the wooden dash. The pressure pump, P, is placed in such a manner that it is quite an easy matter to give a few strokes even while the car is traveling. The gauges, G₁ and G₂, are for the oil pressure for the motor and gasoline pressure for the carbureter. Lubricator glasses are apt in time to become so dirty from the carbon that mixes with the oil that it is almost impossible to see if the circulation is as it should be, but with a gauge it is possible at night as well as during the daytime to keep an eye on this most important function. C is a clutch-stop that is actuated by declutching sufficiently to bring it into contact with the male member.



Refinements on the car add to the joys of automobiling

Comparisons of Fuels

look the Presence of Fuel Value in Every Hydro-Carbon

Automobilists Fail to Appreciate
Significance of Energy and Over-

PERHAPS the greatest reason why some automobilists fail in their understanding of the automobile motor is due to their lack of understanding of themselves. Perhaps it is indolence rather than lack of understanding; it may be a simple case of languor; there are many things that we know about in a vague sort of way, but we fail to profit by vague knowledge owing to our desire not to be troubled. At all events, in order to be able to widen the literature of the subject and to help automobilists to help themselves, it becomes necessary to ramify, to find a more comprehensive definition of fuel than that which is involved in the mere discussion of gasoline.

We say that gasoline is a hydro-carbon; that it is composed of hydrogen and carbon, with a chemical formula of C_8H_{18} , and that the calorific of the fuel is not far from 19,000 B. T. U. The probabilities are that this sort of discussion may be continued for a decade without widening the circle of readers, owing to the fact that most of us have very little inclination to keep in mind the magnitude of the calorie and just what it means when fuel problems are being discussed on a thermal basis.

But instead of talking about internal-combustion motors, as they are made by man and placed in automobile chassis to propel automobiles, supposing that we look upon man as an internal-combustion motor of the natural type and see how the fuel problem is handled in his case. In the first place, let it be understood that the make-up of man is such that he is provided with a furnace in which fuel is burned and that the fuel is referred to as having a calorific value when scientists desire to ascertain qualities of so-called food. In a word, the fuel value is the food value when reference is had to the fuel that man consumes. Of the food that man is so fond of, none of it is so impoverished that it is lacking in calorific. The very instant that a substance is deprived of its calorific it ceases to be good as food. This is proof of the fact that what man eats is fuel. It is the same with a motor; immediately the fuel is deprived of its calorific that very instant it fails to be of use in the motor.

As a further proof of the similarity of the requirement of fuel for man and motor, all that is necessary is to show that every food that is good for man may be used as fuel for a motor. True, the food that man partakes of must be prepared for the motor; in other words, it must be cooked. But the same is true of the food for man; it must be cooked. The digestion of man and the same property in a motor do not differ so very much

from each other. At all events, in the further explanation of the matter, it will be desirable to present a tabulation of foodstuffs and tell of their relative values, merely to show that there are such definite relations that it is necessary to use a common term in order to arrive at a common understanding, and the real point to be remembered is that this term is the one that must be used in estimating the value of fuel used in a motor;

CALORIFIC OF FOOD STUFFS OF AVERAGE VALUE

Description	Calories per pound	Description	Calories per pound
Bacon	3,080	Butter	3,615
Beans	1,615	Rice	1,630
Salt pork (fat)	3,510	Milk	418
Sugar	1,820	Peas	1,565
Flour	1,644	Cheese	1,620
Beef	1,460	Ham	1,950
Tubers (raw)	375	Barley	1,820
Onions	225	Oysters	230
Oatmeal	1,850	Crabs	526
Corn meal	1,645	Crackers	1,920
Corn starch	1,820	Chocolate	2,250

The next thing to remember is that an average man requires enough food to give 3,650 calories of energy within 24 hours.

That we are now on the threshold of a marvelous story, a theme that has to do with brain efficiency, whereas a motor has thermal efficiency, is easily seen. If the requirement of a man, as measured in thermal value—in other words, in calories—is limited to 3,650 calories per 24 hours, it stands to reason that

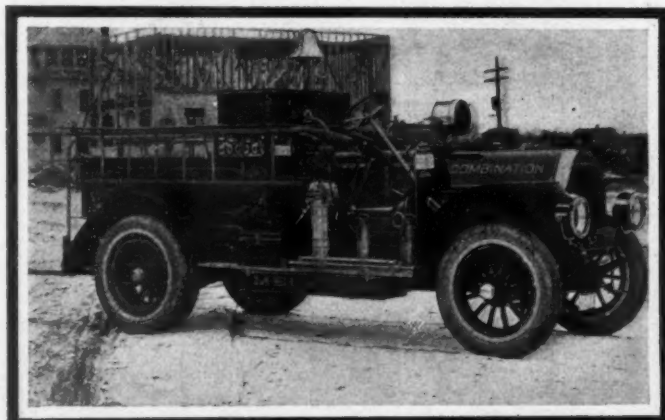


Fig. 1—Combination fire apparatus made by the Knox Company, which is designed for quick and efficacious work

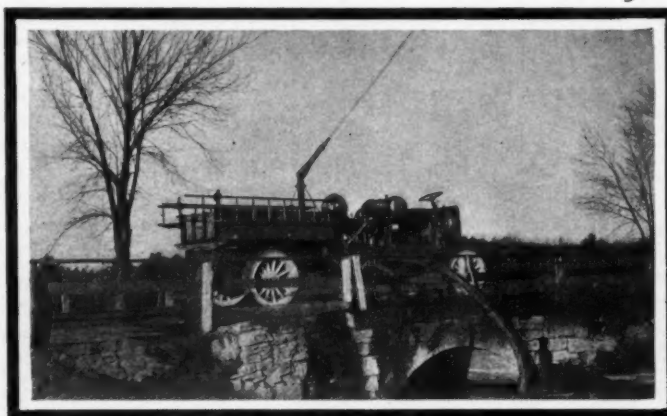


Fig. 2—Showing a Knox fire engine projecting a stream, taking water from a convenient spillway

man cannot, in muscular display, deliver back more than 3,650 calories in 24 hours, and even then the delivery would be on a basis of 100 per cent, which is too good to be true.

But some of the food nourishes the brain cells of man; these cells, instead of being exhausted in the delivery of mechanical work (muscular activity), are capable of phenomena of thought, action of a more efficient character than muscular work produces, and man, under the impetus of thought, builds a machine that will do hundreds and thousands of times the work that he is capable of doing, directly, in a given time.

Some of the calorific of the food that man partakes of, remembering that it nourishes the brain, is utilized in a most mysterious way, let it be said, making it possible for him to build a machine that is of far greater fuel capacity than he is, so that, while man is incapable of acting as a very large furnace for the burning up of fuel, it is nevertheless his peculiar ability to abstract from fuel (food) this peculiar efficiency that has been denied to every

other animate thing, and, recognizing his shortcomings as a furnace in which to burn fuel and abstract its energy for power purposes, he thinks out a machine that is capable of doing what he is unable to accomplish by direct means.

Efficiency Is Denoted in Many Ways

If it may be taken for granted that all energy comes from the fuel that is taken into the furnace of man or motor, it would seem as if efficiency is a marvelous property, capable of many ramifications. In the motor, as it is used in the propulsion of the automobile, it is thermal efficiency that is wanted, and if 20 per cent. of the thermal value of the fuel is turned into mechanical work the average engineer is much elated.

But the motor of the automobile is not the possessor of brains—that delicate organism of man. The automobile motor is limited in scope to the translation of the calorific of the fuel. Is this limit absolute? Is there no way by which the motor can



Fig. 3—Showing a Knox fire equipment in action, delivering a standard stream from an adjustable nozzle to a great height

be brought to a higher state of calorific perfection? Certainly there is! Some of the fuel, it will be remembered, is partaken of by the man who makes the motor; he must think while the motor works, and the motor must do the work so that the man will have time to think. What will be the result? The motor, by working, helps the man to think—that is to say, the man has time to think because he has a part of him (the product of his brain energy) concealed in the motor, and while the motor is performing the man is thinking.

While we are thus fixing a relation between man and the motor that he contrives, we are also making headway in the matter of the better understanding of fuel. But there are missing links. How is it that food is the same as fuel, even if food can be estimated as to its value in calories? But this is not a difficult task at all. Food is prepared for the stomach of man in order that it may be the more readily assimilated. In the same sense it is desirable to prepare the food so that it will be readily assimilated by the motor. All foodstuffs are capable of being reduced to alcohol. Man keeps up the supply of alcohol for his own use; there are those who maintain that there is too much of this food being prepared for those who seem to like it. Alcohol, the product of all vegetable matter, and, if necessary, easily obtainable from hydro-carbons, is in suitable form to serve as fuel for internal combustion motors as well as food for reflection. Now, what is the calorific of alcohol? It is given by Baillie as 5,270 calories per liter. This value is just as feasible as a rating of the alcohol as a food for man as it is as a fuel for a motor. The reason why it is disastrous to man if it is taken in quantity is calorific—it is a very concentrated food. In a general way, it would appear that food digests rapidly or slowly, depending upon its calorific. It is also true of food that it is liable to distress the partaker if too much of it is indulged in, and the higher the calorific the greater the danger of distress.

Reverting now to the motor for the simile: those who talk

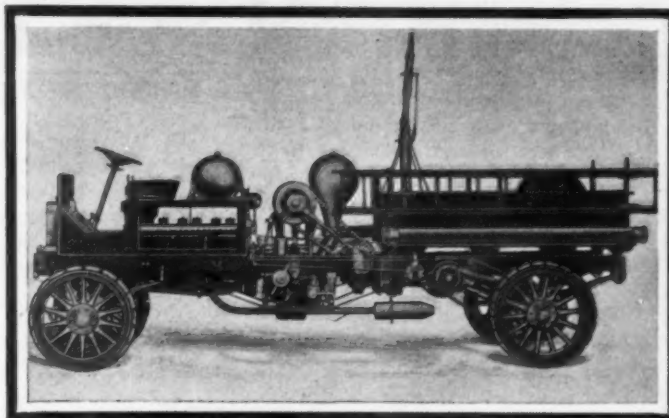


Fig. 4—Side view of the Knox fire-fighting equipment, showing the location of the fire engine amidships, the swivel nozzle and many refinements in point of detail

about the ills of motors, while they use different terms in making their explanations, really could accomplish the end without getting out of bounds. If, for illustration, gasoline is used, the motor will show signs of distress if too little of the gasoline is supplied. In other words, the motor will become wearied; it will tire out. When a man is exhausted he stops exerting himself, and when a motor is wearied it does the same thing. A man may become tired even though he is supplied with an adequacy of the most efficient foodstuffs; he then reaches the limit of his capacity as a machine. This is true of a motor also; the motor is then said to be working beyond its rated capacity. But supposing a man eats too much of good food, or a quantity of inferior provender, what is the result? The man has an attack of indigestion. It is the same with a motor; if the food is too rich the motor labors under a bad case of indigestion. Going back now to the man; if he has strange gases generated in his digestive tract it is termed acute indigestion—the man is liable to expire. When a motor is poorly scavenged, in other words, when the cylinder (the stomach) is choked up with strange gases, it, too, is liable to expire—the motor will stall.

Fire-Fighting Autos

Some Phases of the Question,
with Special Reference to In-
creased Efficiency

EVERYWHERE throughout the country the fire departments of the many municipal governments are investigating automobile fire-fighting equipment, and an impetus is being given this branch of the art, due to the good experience which is being had with the equipment thus far tried out. In a measure fire departments look to the big cities for their example, and it is pleasant to observe that even New York City, which is a little too conservative in the matter of the adoption of relatively new things, has passed upon and accepted the automobile as a leading feature in its campaign against destructive fires. As a matter of fact, since the introduction of the high-pressure main system in New York, it was found that animal power for the hose-wagons and other fire equipment was totally inadequate. The time arrived when to put up with anything less than automobile propulsion was to admit that the fire-fighting equipment could only be regarded as inharmonious.

In some respects the smaller cities took the lead from the automobile point of view, and in these days it is difficult to find a city of moderate size that is considering anything but automobile equipment. The smaller cities pride themselves upon their sprightliness in seeing the light as it shines from the lamp of progress, and they set a good example to the great metropolitan districts, particularly in the matter of fire-fighting equipment. As an indication of the trend in automatic fire apparatus, the illustrations as here offered of the Knox apparatus will suffice.

Does the Compression Vary with the Speed?

Editor THE AUTOMOBILE:

[2,494]—I should be interested to know through your "letters" column if the compression of a four-cycle motor varies with the speed. Also what is meant by piston speed in feet.

J. W. D.

New York.

Compression will vary in a four-cycle internal combustion motor in proportion to the scavenging of the cylinder during the exhaust stroke, and this again is dependent upon the speed of the motor. In the curve plotted in Fig. 1 it will be seen that the compression at 300 revolutions per minute is 67 above atmospheric, which is equivalent to 81.7 pounds per square inch. The curve rises gradually to 78 pounds per square inch above atmospheric at an engine speed of 1,000 revolutions per minute, after which it drops gradually, owing to the choking effect of the strangled exhaust, part of which remains in the cylinder, preventing the piston from sucking against a vacuum as it does in a case where everything has been expelled from the cylinder before the suction stroke starts.

Piston speed in feet of a motor is found by multiplying the number of revolutions per minute by twice the length of stroke in feet.

One-Pedal Control

Editor THE AUTOMOBILE:

[2,495]—As a subscriber to THE AUTOMOBILE and a prospective automobile buyer, I wish you would explain to me the principle of the one-pedal control.

F. WAGUESPACK.

Mount Airy Plantation, La.

The principle of the one-pedal control consists in utilizing the one pedal for two operations. As will be seen in Fig. 2 the pedal on the left operates the clutch and foot brake; the pedal on the right is simply for the accelerator, which can just as easily be operated by a hand lever. The action of the left or larger of the two pedals is so arranged that by pressing it down to about half its travel it withdraws the clutch and, with the further

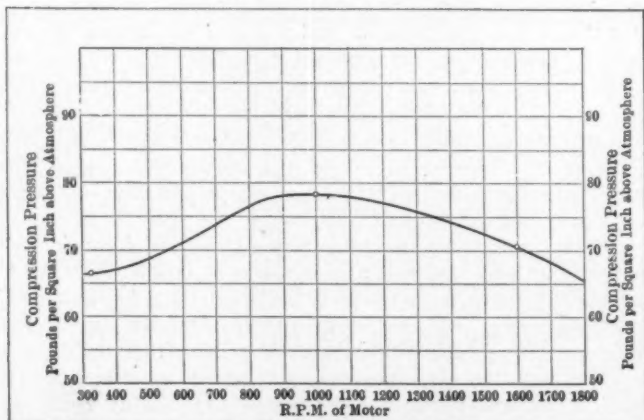


Fig. 1—Chart showing variation of compression in a four-cycle motor at different speeds

pressure the brake is applied. Some people like to drive using the engine compression as a brake, aiding the stopping by judicious application of the foot brake. In the case where cars have single-pedal control the hand brake must be substituted instead.

Incrustation in Water Jackets

Editor THE AUTOMOBILE:

[2,496]—Will you advise me as to the advisability of using kerosene for cleaning scale from the water jacket and radiator? I know of steam engineers using same to clean scale from a steam boiler. The operation consists of adding quite a little oil

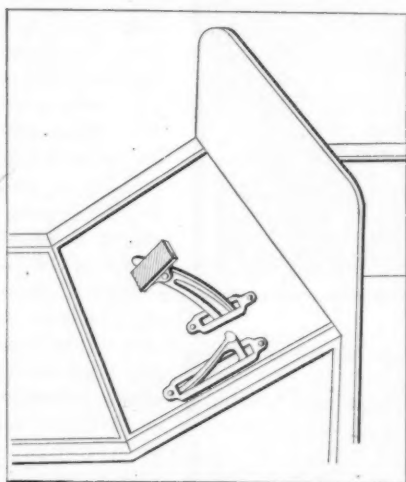


Fig. 2—Showing installation of one-pedal control

with the water, running the engine rather warm and then flush with water pressure. Gravity, Iowa. C. B. BAILEY.

The use of kerosene to remove the scale should answer, as the effect of kerosene is to dislodge from metal anything that is, not permanently united to it. For instance, a drop of kerosene in the base chamber is sufficient to break up the unbroken film of oil in the bearing. The kerosene frees the particles of scale and they can be afterward removed. There are parts of the water jackets, such as the exhaust valve pockets, that are subjected to great heat and where the scales are liable to form quickly and where the circulation is sluggish owing to the restricted area. A method of getting at these interstices is shown in Fig. 3. A copper pipe is attached to the end of

The Editor invites owners and drivers of automobiles who are subscribers to THE AUTOMOBILE to communicate their automobile troubles, stating them briefly, on one side of the paper only, giving as clear a diagnosis as possible in each case, and a sketch, even though it may be rough, for the purpose of aiding the Editor to understand the nature of the difficulty. Each letter will be answered in these columns in the order of its receipt. The name and address of the subscriber must be given, as evidence of good faith, adding a nom de plume if the writer desires to withhold his name from publication.

the hose connection in some suitable manner. It is possible to work such a pipe around and with the pressure of the water after the scale has been freed there should be no difficulty in removing it.

Tank Might Explode with Disastrous Results

Editor THE AUTOMOBILE:

[2,497]—Can you suggest an inexpensive method of installing a compressed-air apparatus in a small private garage. The air is desired for inflating tires, cleaning upholstery, etc. Can an ordinary 40-gallon water boiler be used as a storage tank? What compresses would you recommend and what motive power will be the most satisfactory? If an electric motor is used, what horsepower will be required? Space in the garage is limited and very little room can be allowed for the outfit.

SUBSCRIBER.

There is no inexpensive way of handling nitro-glycerine, gunpowder, steam or compressed air. You should not be permitted to employ anything but a tested tank if it is to be used to hold compressed air for inflating purposes, due to the fact that the air is an elastic body, and if the tank fails to support the pressure it will be disrupted with disastrous results. Any tank employed for this purpose should be given a hydrostatic test under 150 pounds per square inch.

Conflict of Thought Involved

Editor THE AUTOMOBILE:

[2,498]—Through the column of queries will you kindly state why chain drive is used in preference to shaft in automobiles of heavy service, and in your opinion which is the more practical?

CHESTER H. MORSE.

Taunton, Mass.

There seems to be no satisfactory explanation to the problem you present. In the early days of automobile work, chains were used exclusively, and later on, when the shaft idea took root, it was tried out on the relatively small sizes of cars. You



What Other Subscribers Have to Say

The Editor invites owners and drivers of automobiles who are subscribers to **THE AUTOMOBILE** to communicate their personal experiences for publication in these columns for the worthy purpose of aiding brother automobilists who may be in need of just the information that this process will afford. Communications should be brief, on one side of the paper only, and clearly put, including a rough sketch when it is possible to do so, and the name and address of the writer should be given as evidence of good faith, adding a *nom de plume* if the writer desires to withhold his name from publication.

might like to know that there are more chains used on small cars to-day than there are employed on the more pretentious models. This fact would seem to indicate that both chains and shaft drives are optional to a good designer; moreover, it would seem that the limit has not been reached in the application of these methods.

Depends Upon Design and Proportions

Editor **THE AUTOMOBILE**:

[2,499]—At this season of the year when many automobilists are overhauling their motors, some others, like myself, would be interested to see in your "Practical Questions Answered" column some information regarding clearance between piston and cylinder, clearance between edge of piston ring and edge of ring groove in piston, advantages or disadvantages of slant joint for rings compared with square cornered step-joint, clearance between ends of rings at joints when compressed to diameter of the cylinder, width of rings and number of rings in each piston. I know from experience that it is difficult to get definite information regarding the minimum and maximum limits allowed by those in a position to know what the best practice is, and many motors after they are taken down are reassembled without making changes necessary to obtain satisfactory results.

H. B. TILTON.

Laconia, N. H.

The clearance of the piston of a cylinder will depend upon the design of the same, and the efficiency of the cooling system. For a poorly designed motor the clearances might be as follows:

Diameter of cylinder	Diameter of piston
4 1-2 inches	4.485
5 1-2 inches	5.480

There are quite a number of motors that operate on a closer fitting set of pistons than those indicated above. The piston rings should be so fitted that they will

move freely in all directions under slight hand pressure. The joints of the rings should not be fitted too close; it really does not make a great difference which kind of joint is employed.

Busy Inventing Complications

Editor **THE AUTOMOBILE**:

[2,500]—As I am a constant reader of **THE AUTOMOBILE** I feel at liberty to ask you a question or two:

1. Is there a need of, call for, or use for a pneumatic clutch, one that will go in the space of the ordinary flywheel of the engine, take up gradual hold, simple, and foot-controlled? Has there been anything in that line tried before?
2. Will the touring car of the future have arched axles (giving great clear-

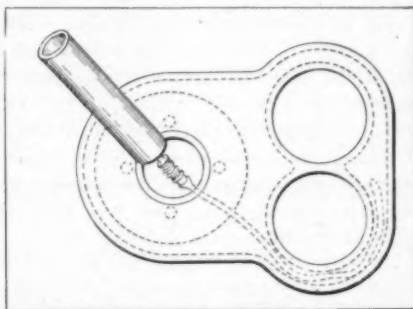


Fig. 3—Method of removing scale from water jacket

ance), jackshaft with two worm shafts to rear wheels, with ratchet to go ahead and coast, and locking by foot-pedal to back up? To make myself plainer, worm and pinion to be substituted for old style double side chain drive. Of course worm shafts to have extensible universal joints to be in condition to take care of road inequalities. It seems to me there is an "open spot" including very large wheels, double solid tires, pneumatic suspension, etc., that has not been gone over by automobile manufacturers. Any opinion you may care to hand down on these brainless quaverings of an autoless enthusiast will be appreciated.

F. L. BRINGHURST.

Alexandria, La.

The great question in the automobile business is to turn some of the attention to the simplifying of the mechanisms and the elimination of parts which cannot be said to have a true functioning relation.

If you can improvise a pneumatic clutch that is better than anything else, it will doubtless be a good thing. You would have to prove that your ratchet idea is superior to a differential.

Wiring Diagram Wanted

Editor **THE AUTOMOBILE**:

[2,501]—I should be obliged if you will through your columns give me a wiring diagram of a K-W magneto; particularly how the wires from the distributor connect to the plugs.

WIRACRAM.

Newark, N. J.

The diagram, as shown in Fig. 4, is no doubt what you desire. Most engines of the four-cylinder type fire in the manner shown, but should yours be different the best way to be sure is to watch the opening of the valves, which will give you the sequence of firing. You will notice that the wire marked 3 is attached to No. 4 cylinder.

Might Require the Same Distance for Both Cars

Editor **THE AUTOMOBILE**:

[2,502]—Some time ago I read of some comparative tests of the distance in which automobiles, horse-drawn vehicles, etc., could be stopped when going at a certain rate of speed. As I think I saw it in your paper I am enclosing stamp for that issue which contains the article.

Another thing which I should very much like to be enlightened upon is this: In what ratio does the friction of tires to the roadbed and the weight of the car increase? The question which I am trying to decide is which will stop the quicker, a car weighing 2,000 pounds or a car weighing 4,000, both going at the same rate of speed, and both having their rear wheels suddenly locked.

O. W. S.

Little Falls, N. Y.

The tests to which you refer were conducted on a Long Island road of rather poor quality under the direction of Logan Waller Page, Commissioner of Highways, but owing to lack of adequate preparation and to the selection of a poor road, they

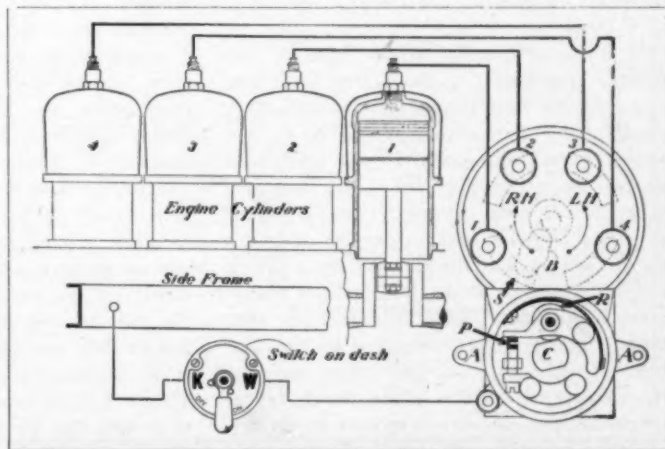


Fig. 4—Showing wiring diagram of the K-W magneto

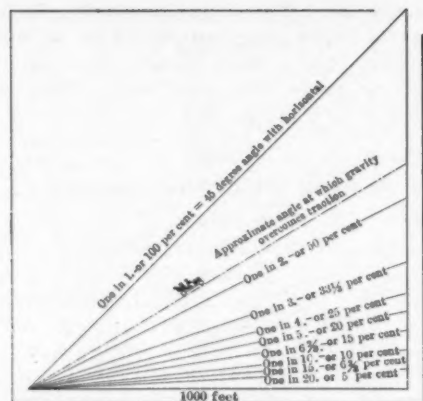


Fig. 5—Illustrating method of calculating grade percentages

were not regarded by some as being of great value. It was found at the time that doubling the speed of a car quadruples the distance in which motion can be arrested. It is further indicated that it took about the same distance in which to stop a motor cycle as it did a horse-drawn vehicle or an automobile, speed for speed. It is scarcely to be supposed that all automobiles will perform precisely alike in this regard, since it cannot be said of them that the weight distribution is the same for all.

Method of Measuring Grades Illustrated

Editor THE AUTOMOBILE:

[2,503]—Please answer the following questions through your columns:

1. What is a 50 per cent. hill?
2. What would a 100 per cent. hill be?
3. What per cent. would a hill that is nearly perpendicular, say 85 degrees, be?
4. On what per cent. grade would the average automobile lose traction?

Des Moines, Iowa.

W. P.

Referring to Fig. 5 you will find that a 50 per cent. grade is a 1 in 2 grade; in other words, for each two feet that the car goes along the road it must go up one foot. According to this method of procedure a 100 per cent. grade is one in which the car goes up one foot for each foot of horizontal travel. In taking advantage of the illustration, it will be desirable to understand its graphic construction, which is as follows:

If it be assumed that the base of the triangle represents a line 1,000 feet long and that the first sloping line represents a road having a rise that brings it 50 feet above the starting point, this is figured as 50 feet in a thousand, or 5 per cent., in other words, one foot of rise for every 20 feet; but the latter distance does not mean distance actually traveled by a car in ascending such a slope, but distance measured horizontally with reference to that slope. The grade is measured by the tangent of the angle of inclination and not by its sine, so that a grade which represents 100 per cent. corresponds to an angle of inclination of but 45 degrees, and not 90 degrees, or perpendicular, as is com-

monly supposed. At the upper end of the next sloping line the elevation would amount to 66 2-3 feet, which is equivalent to a rise of 6 2-3 feet for each 100 feet traveled horizontally. So one in three corresponds to a 33 1-3 per cent. grade, one in two to a 50 per cent. grade, and so on until a 100 per cent. grade is reached, which is equal to a 45 degree angle.

Economy Lies in Operating the Automobile at a Low Speed

Editor THE AUTOMOBILE:

[2,504]—I have been much impressed with the value of your query department, which brings out points of value even to an experienced autoist.

I am at present much interested in the question of gear ratios. I am driving a 1911 car, weighing 3,245 pounds when equipped for the road, but without people in it. This car is geared 3 7-16 which I find hardly satisfactory for our road conditions, which are complicated by deep gutters at many street intersections, and by having an almost irresistible desire to take the by-paths and explore the country thoroughly. I am thinking of putting tires to measure 37 x 4 1-2 inches on the rear wheels of this car, which has 36 x 4 tires on it now, and wish to have your suggestion as to the most practical gear when you take into consideration the fact that the clutch is the best ever, and that the A. L. A. M. horsepower rating is 32.4 horsepower. Is the lower gear more economical as to tires and engine strain? I understand it is more expensive as to gasoline.

Memphis, Tenn.

REAL ESTATE.

This problem may be viewed from two angles. The first fundamental basis in the search for economy lies in the operation of the automobile on the road at the lowest desired speed. The second thought is that the motor should be permitted to run at the lowest speed which will register with its highest thermal efficiency.

The first idea is very readily disposed of. Every automobilist has it within his power to elect to be satisfied with a moderate speed of traveling on the road. The second idea is not so readily disposed of. Motors as they are designed and constructed have characteristics which are not disposed of by considerations of displacement. Some motors perform best at 800 revolutions per minute, and others at higher speeds up to 2,000 revolutions per minute. If you can satisfy yourself relative to the best speed at which to operate your motor it will be a simple matter to fix upon a gear ratio that will satisfy the two considerations, i. e., the speed of the motor on the one hand, and the speed of the car on the road on the other hand. But in this case all that you propose to do is to increase the diameter of the rear wheels a little, and your previous experience with the car should suffice to tell you whether or not the motor has a sufficiency of reserve power to warrant you in adding

to the load on the motor. The probabilities are that you are in the danger zone, and instead of a ratio of 3 7-16 to 1 it might be desirable to change to a gear set that will give you a ratio of 4 to 1. You will have to examine the gear housing and find out whether or not there is room for a larger bevel gear. At all events it will not be desirable to reduce the teeth on the bevel pinion to a number below 14.

Two-Cylinder Motor Crankshaft

Editor THE AUTOMOBILE:

[2,505]—I would be pleased if you will inform me through your journal as to the proper location of the cranks for a two-cylinder vertical engine. My engine does not run smooth and I have been told that it is the fault of the crankshaft. The way

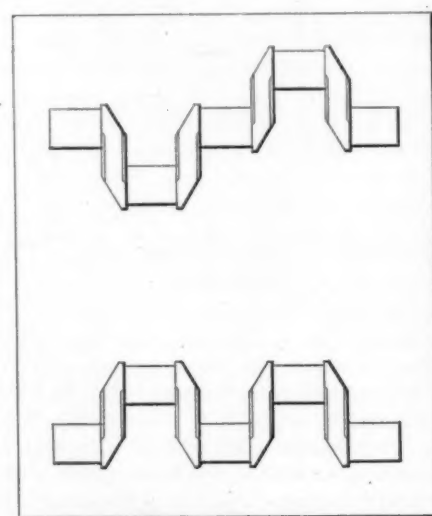


Fig. 6—Showing two types of two-cylinder crankshaft construction

the shaft is at present is when one piston is up the other is down and when the engine is running from 1,200 to 1,500 revolutions per minute it shakes considerably.

St. Louis, Mo.

A. SMITH.

The design of crankshaft in your motor is the better of the two, and it stands to reason that at the speed you mention that there is going to be vibration, as the normal speed of a two-cylinder motor should not exceed 800 to 1,000 revolutions.

One method of decreasing the vibration is to increase weight of the flywheel, and this can be done by sending it to the foundry with instructions to them to "wrap" it.

If water is in the gasoline it will flow to the carbureter.

If water flows to the carbureter it will pass up into the nozzle.

If water reaches the nozzle it will serve as a cork, preventing gasoline from flowing out.

If water thus stays the flow of gasoline, the mixture will become unbalanced.

If the mixture becomes unbalanced the motor will fail to deliver its usual power.

Effect of Wind and Area on Speed

Editor THE AUTOMOBILE:

[2,506]—I should like to know in what proportion the wind resistance increases with the speed of a car. A READER.

Detroit, Mich.

At speeds below twenty miles per hour the effect of wind resistance, so called, is below the noticeable point when an attempt is made to measure its magnitude. Considering surfaces at right angles to the normal plane of travel of the automobile, the wind resistance, as measured in pounds per square foot, while it begins to show at about fifteen miles per hour, rises slowly, reaching about 2 1-2 pounds per square foot when this speed is doubled. Further increases in speed result in a rapidly increasing rate of resistance to travel as measured in pounds per square foot, and at 60 miles per hour this effect is slightly over 13 pounds. Increasing the

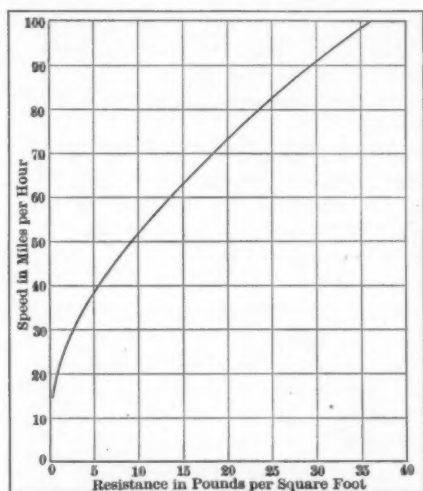


Fig. 7—Chart plotted to show the increase in wind resistance with speed

speed again up to ninety miles per hour increases the effect of wind resistance so that it is represented by the considerable figure of 29 pounds per square foot, approximately. The curve here given shows the results of tabulation involving these factors and illustrates the necessity of treating with this question of front area.

There are two possible remedies in an attempt to reduce the ills of wind resistance, one of which lies in the greatest possible reduction of front area, and the other involves wedge shapes and a smooth exterior. If cooling depends upon a radiator in front, the area of the radiator exposed is, of course, regulated by the cooling requirement. A certain amount of air must rush against the cooling surfaces, so that the air molecules will sponge heat out of the cooling water as fast as it is enabled to penetrate the walls. The ability of the radiator is increased with the speed of the car up to about twenty miles per hour, but beyond this point front area, from the cooling point of view, is not a factor. The front area, as regulated by the radiator, therefore, must be such as to

permit a sufficient weight of air to brush over the cooling surfaces at a speed of twenty miles per hour.

Oxidizing Brass Parts

Editor THE AUTOMOBILE:

[2,507]—There are several parts of my car that I should like to oxidize to overcome the cleaning problem. I have noticed lamps all black that have evidently been oxidized, and as I do not wish to throw my present ones away if there is any simple process that I could carry out myself to effect what I want, I should be glad to hear from you through your valued columns. TROUBLESOME.

Fort Worth, Tex.

If you dissolve 100 parts of copper nitrate in from 100 to 200 parts of water it is possible to form a solution in which the parts can be immersed or, if too large, the solution can be painted on. Then drain or shake off the surplus solution and heat the article to decompose the copper salt into a black copper oxide. The heating can be carried out either over a clear coal fire or in a closed muffle furnace.

Copper may be darkened by washing the surface with a solution of 5 drachms of nitrate of iron and 1 pint of water.

There Are Other Considerations Besides

Editor THE AUTOMOBILE:

[2,508]—Please answer the following through your question column:

How much more friction is there in a plain white metal bearing than in a well-made roller bearing? About what is the difference between plain roller and ball bearings as regards friction and wear, and the amount of power consumed?

High River, Ala. E. H. SCHRONDER.

The friction of a plain white bearing

would really be the friction represented by shearing the lubricating oil which forms the working film between the white metal and the shaft. It is not believed that the ball and roller types of bearings are used exclusively on account of their anti-friction qualities. These types of bearings would work for quite a long time without any lubricating oil, whereas a plain bearing would heat up and "freeze" perhaps in a few minutes.

Two-Cycle Self-Starter

Editor THE AUTOMOBILE:

[2,509]—I have seen it somewhere stated that it is possible to fit a self-starter to a two-cycle motor. I should like to know how it works and how it is installed.

Buffalo, N. Y.

J. W. CHARTERIS.

The self-starter works on the compressed air principle, with a distributor and hand-operated valves. The method employed in the Amplex is shown in Fig. 8. The pressure tank is filled from the motor, there being a relief valve in circuit to take care that too much pressure shall not be delivered to the tank. To control the flow of compressed air from the tank there is a screw-down valve operated by a wheel placed near the driver's hand. The pressure flows to the check valve, and when the button is depressed the air is fed to a distributor at the same time opening the valves on the cylinders. The air is distributed in much the same manner as the current is delivered by a timer, and as the pressure enters it forces the piston down as if the engine were to be cranked by hand.

If the spark is not properly retarded when a motor is being cranked, the cranker will be the subject of an accident.

If the cranker is the subject of an accident he may suffer a broken arm, or even worse.

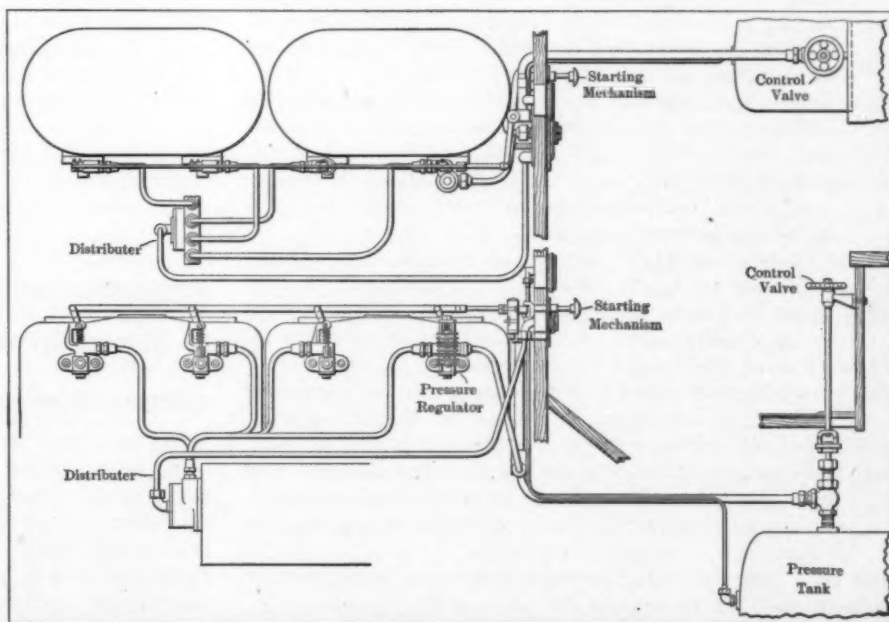


Fig. 8—Plan showing the arrangement of the two-cycle self-starter

Some Pointed Injunctions

Don't Split Hairs with Your Good Judgment

When It Comes to the Selection of an Automobile—It Don't Pay

- Don't** peel off your coat and crank for an hour to no effect, and then look in the gasoline tank only to see the polished bottom of the tank glistening for want of liquid.
- Don't** become too sanguine over the promises of the salesman; let him show you all that there is to be seen.
- Don't** be content with the hollow mockery of a promise; make sure, by personal observation, that things are all that they should be.
- Don't** let the salesman break the rules of the establishment that he represents on your account; he has no right to change the maker's guarantee; it is printed in the back of the catalogue.
- Don't** let your brain skid when you are examining an automobile, nor allow the representative to high-gear money away from you; get what you go after.
- Don't** discriminate against a make of automobile just because it has been a satisfactory performer for enough years to make friends; the automobile business seems to frown upon a thing unless it is brand new.
- Don't** buy an automobile just because it is old; place your money against your horse sense; this property of the brain is sound to the core.
- Don't** make up your mind beforehand that you will have a long-stroke motor; what you require is a long-lived motor.
- Don't** be biased in favor of a short-stroke motor; it might be short on other qualities that you will need in a day's travel.
- Don't** worship your ideals; just be guided by good common sense; examine an automobile of the kind that looks like what you need and when the right one is presented, reach down in your "lisle thread bank" and fish out money enough to pay for it.
- Don't** put the salesman to a large demonstrating expense; when you make up your mind that the car is not what you want, tell him so and go.
- Don't** put all your money in a body; look at the bearings; examine the clutch; try the brakes; note whether or not the parts are well fitted.
- Don't** judge noiselessness by a new car; listen to the performance of an old one of the same make—find out how old it is.
- Don't** make as much fuss as if you are to be hanged just because you are purchasing an automobile; it is a perfectly simple and normal transaction.
- Don't** try to play ducks and drakes with the salesman; he may not be quite as big a fool as you take him to be.
- Don't** depart from your usual pleasant demeanor when you are trying to purchase a car; the salesman will do better by you if he likes your style—have some style.
- Don't** place too much reliance in the say-so of your friend who claims to be an expert; he may be good at lifting commissions.
- Don't** subordinate your own good judgment to that of some other person; you do not have to assume the prerogative of a blockhead just because you desire to purchase an automobile.
- Don't** be a fox; some well-mounted sportsman will get your "brush."
- Don't** try to get the best of the bargain; you will be busy in the simple undertaking of getting what belongs to you.
- Don't** forget what you need when you come into the presence of a car that looks fine; what do you want with something fine if it is not within your circumference?
- Don't** put all your money into a car; you will require some of it for the accessories, a spare tire, and to pay for proper maintenance later on.
- Don't** buy a car and then run it on top speed; go slow; be advised; the life of a good automobile is much shortened when it is made to go too fast.
- Don't** make the motor go slow when it is desired to run the car slowly; use the sliding gears; that is what they are for.
- Don't** bolt down a hill and gather momentum in order to help you up the facing grade; the motor will do the work; all that you have to do is to slide the gears.
- Don't** expect the earth out of an automobile; supply some of the intelligence yourself.
- Don't** go at a rate of speed that will demand the use of the brakes at every corner; what is the use?
- Don't** neglect to wash the car; the finish is delicate; it will adhere to the dirt when the latter is scraped off later on.
- Don't** be "smart"; there is nothing in it; just be your normal self all of the time.
- Don't** put on airs to your neighbors; they do not have to foot the score; that's where you jump off.
- Don't** go around looking for a family tree just because you have purchased a new automobile; it might have a rotten core, anyway; it is better to save up the money so that you will be in a position to enjoy the automobile.
- Don't** raise the dust on the road; particles from your tires will be a part of that dust.
- Don't** take curves like a mad Mullah; there may not be a vacancy in Heaven just at the right time.
- Don't** be rough to the locomotive; bring your car to a stop; make a low bow, and if the "big fellow" refuses to notice you, why, let him pass.
- Don't** take your "lady" for a spin and show off by speeding; she knows that you are "the thing"; otherwise she would not be on hand.
- Don't** stop at "coaling stations" along the roadway; if you must indulge in intoxicants, why don't you wait until the car is safe in the "roundhouse?"
- Don't** feed your chauffeur on beer and other "fog"; he might not then be able to decide which of the "two" roads to take.

A Sharp News Nose

English Automobile Paper Finds Many New Plants in Maine and Washington

The movement to create an enormous export trade by the U. S. A. makers of automobiles has not abated during the past season, and we hear daily of more and more makers and capitalists launching out to conquer the world with American cars. From a good source of information (*sic!*) it has become known that in one week in October last there were twenty-five new automobile concerns started in the States of Maine and Washington and these new concerns were furnished with \$3,500,000 capital.—*Motor Trader* (London).

Questions That Arise

Some of Those That Come Up in Every-Day Automobiling are Answered by the Matter Presented by Forrest R. Jones in the New Edition of the "Automobile Catechism"

[377]—Why should the timer be closed earlier at high rotative speed of the engine than at slow?

For two reasons:

First: There is an appreciable time between the instant at which the timer closes the primary circuit and the instant of the occurrence of the spark between the ignition points in the combustion chamber. This time interval is constant whatever the speed of the engine. It may be called the lag of the spark. In order, therefore, to have the spark occur at a given position of the piston the timer must close the primary circuit earlier in the cycle when the engine is running rapidly than when it is turning over slowly.

Second: An appreciable time is also required for the inflammation of the charge in the combustion chamber, and the rapidity of inflammation after ignition by the jump-spark varies with the intensity of compression in the charge. When the charge is small and the compression low more time is required for inflammation than with a full charge and correspondingly high compression.

For these reasons the timer should close the primary circuit earlier in the cycle when the engine is running rapidly than when it is turning over slowly; and also when the charge is small (by throttling) as compared with the full charge allowed to enter by an open throttle.

[378]—What provision is made for adjusting the timer with regard to the instant of closing the primary circuit of the spark-coil?

The part which carries the stationary contacts is adjustable by rocking around the shaft on which the rotor is mounted. Sometimes the outer casing is rocked, and in other designs an additional rocker which carries the stationary contact pieces is provided. Sometimes the rocker can be moved as much as 90 degrees around the rotor shaft.

The rocker is connected to the spark control in reach of the driver by means of rods, wires, gears, etc. An arm (rocker-arm) is generally provided for this connection.

[379]—How much will a rotation of 90 degrees of the timer rocker change the time of closing the primary circuit of the spark-coil relative to the rotation of the crankshaft of a four-stroke cycle motor?

One stroke of the piston for a timer which has only one contact point on its motor. This corresponds to one-half revolution of the crankshaft in the ordinary type of engine.

[380]—What is a late spark (late ignition)?

One that comes late in the cycle of the engine. The spark coming after the piston has gone some distance on the impulse stroke is a late spark. A late spark comes much earlier than this, however, when the engine rotates rapidly, since the speed of the engine enters as a factor in determining what is a late spark.

[381]—What is an early spark (early ignition)?

One that occurs earlier in the cycle than the late spark. When the engine is running at considerable speed an early spark comes before the completion of the compression stroke. The timer may be adjusted so that the primary circuit is closed when the piston has completed less than half its compression stroke, but under this condition a spark will not pass when the speed is very high until the compression stroke has been nearly completed. This refers to a system having a timer and a trembler spark-coil.

[382]—How does the consumption of electricity in an ignition system having an ordinary timer differ from that in a system having an interrupter, which closes the circuit the same length of time for each ignition whether the motor is rotating at high or low speed?

The ordinary timer keeps the primary circuit closed the same proportion of the time (by the clock) that the motor is running whether the speed is slow or fast. Thus, if the circuit is closed one-tenth of the time during one revolution of the timer rotor it will be closed one-tenth of the time by the clock, whether the rotative speed is high or low, the timer must keep the circuit closed long enough for the trembler to act and for an ignition spark to be produced at the highest speed of rotation. It, therefore, keeps the circuit closed longer than necessary when the rotation is slow, and is, therefore, wasteful of current at slow speed.

An interrupter which keeps the circuit closed only long enough for the spark to be produced, whatever the rotative speed of the motor, is not wasteful of current at any speed of the motor, provided the system is properly proportioned.

[383]—What is a low-tension magneto?

One which delivers low-tension current of a pressure suitable for make-and-break ignition, or for the primary winding of a transformer spark-coil for high-tension (jump-spark) ignition.

[384]—What is a high-tension magneto?

One which delivers high-tension current suitable for jump-spark ignition without the aid of a transformer spark-coil exterior to the magneto.

[385]—What is the general nature of the more usual type of low-tension magneto for automobile ignition?

It consists usually of a group of U-shaped permanent magnets grouped together and provided with a pair of iron or soft-steel pole-pieces fastened, or fitted, to the ends of the magnets, and of a rotary part (the rotor) which revolves between the pole-pieces. The pole-pieces are bored out cylindrically to fit close to the rotor without touching it. The magnets are of hard steel. Only one magnet is used in some magnetos.

A coil of insulated copper wire is wound on some part of the apparatus. In some designs the wire is wound on the rotor and revolves with it; in others the winding is on a spool which remains stationary. The stationary spool winding encircles a portion of the rotor in some cases, but in others it is at a considerable distance from the rotor.

[386]—What is the armature of a magneto?

Broadly speaking, it is the wire winding together with the iron or soft steel part on which the wire is wound. It is hardly possible to define it more closely in view of the numerous forms of magnetos.

The armature either rotates or oscillates in many designs of magnetos, but in numerous other designs it remains stationary.

[387]—What is the core of an armature?

The iron or soft steel part upon or around which the armature wire is wound is called the armature core. The core, or at least a portion of it, is generally made up of thin sheets of armature steel cut to proper form and held together side by side. This forms a laminated core.

[388]—What is the magnetic field of a magneto?

In a limited sense, it is the space between the pole-pieces of the magnets, containing the armature. This is where the magnetism is strongest exterior to the magnets and pole-pieces.

Making Engine Repairs

How the Bearings of a Motor Should Be Turned in Order to Obtain Good Results and Other Considerations

TAKING for granted that the main bearings of a motor are sent out in the first place correctly aligned and the amount of clearance of the crankshaft machined to some fixed standard, there comes a question that is not often considered when the motor is overhauled that will show itself in its running after a thorough overhaul.

In the case of the motor shown in Fig. 1 the owner has decided on a complete overhaul of all the motor bearings, and although there are seven main bearings on this particular make of car the same remarks that follow apply to those motors that have only three bearings, and to a certain extent more care should be taken with this latter type, as there is less to retain the complete balance than in the type here illustrated.

The operation depicted represents the fitting of new bearings that are made in the first place longer than is necessary for interchangeability. The reason for this is that the amount of clearance between the crank webs may vary in thousandths of an inch and it is just in this respect that accurate fitting is desirable to sweet running and longevity. In other words, there has to be a certain amount of end play in the crankshaft in its bearings, say about 15-1000 of an inch.

The practical method of carrying out this operation is to hand mill the bronze ends so that when the crankshaft is lifted into place there is the above amount of lateral travel. Fig. 1 shows this being done. Designers of motors of the present day are gradually adopting the system as used in this motor, viz., to use the lower half of the base-chamber as an oil receptacle and suspending the crankshaft with blocks. The many advantages of this method will be readily perceived by the most conservative, as when the older form of fitting the lower half of the bearing as part of the base proper is adopted even the thousandth part of an inch of packing would upset the alignment.

The shaft, S, can be made to any length to suit all engines, and for any particular job it only remains to turn two parts to fit over this the same size as the crankshaft journals that pass through the end bearings. A key way is then cut the whole length of the shaft in order to secure the milling cutters, M1, M2, M3, M4, M5, M6, by means of set screws. The bearings are then clamped in position, and a good tool for doing this work will be seen by referring to T in Fig. 1.

The operator can then take off as much of the end of the bearing as is required with the greatest amount of exactness, determining the fit by the use of a feeder gauge. Unless this clearance is given there will be a certain amount of heating take place owing to the side friction, and the small amount of to-and-fro motion adds polish to the bearing surfaces. The amount of clearance between the connecting rod big end bearing and the side webs of the crankshaft should not exceed from 5 to 8 thousandths of an inch.

The length for a crankshaft bearing can be determined once the diameter has been found, and some authorities on the subject give the following formula for determining this:

$$l = \frac{Dc^2 P}{1018 Ds}$$

where l = the length of the bearing.

Dc = cylinder diameter.

Ds = shaft diameter as determined.

P = mean effective pressure.

In some cases this is not considered enough, and as a rough means of arriving at the length it is made to equal 2.5 Ds .

There are several methods employed in running the bearings in after they have been scraped, but the method shown in Fig. 2 has several points to recommend it. There is no difficulty in carrying the horse or trestle and fixing it so that the flywheel is in line with the overhead shafting, and when the motor is set up in this manner it can be run under the same conditions as if it were in the car frame. Some difficulty is experienced in cases where the side members of the motor are attached to the frame to form the supports when placing this type of motor on the horse, and the method adopted in Fig. 2 shows how this difficulty may be overcome.

To take the place of the frame a length of metal three-eighths of an inch thick as long as may be required will serve the purpose admirably, and this should be drilled so that it can be attached to the side arms just as if it were the frame proper. It can be used as a turntable as well as a support, by drilling a hole midway between the supports and by means of these holes and a hoisting tackle the lower part can be turned up as in Fig. 1, or reversed as in Fig. 2, at will.

Theoretically all metals have the same friction, according to Thurston, and the value of the soft white alloys for bear-

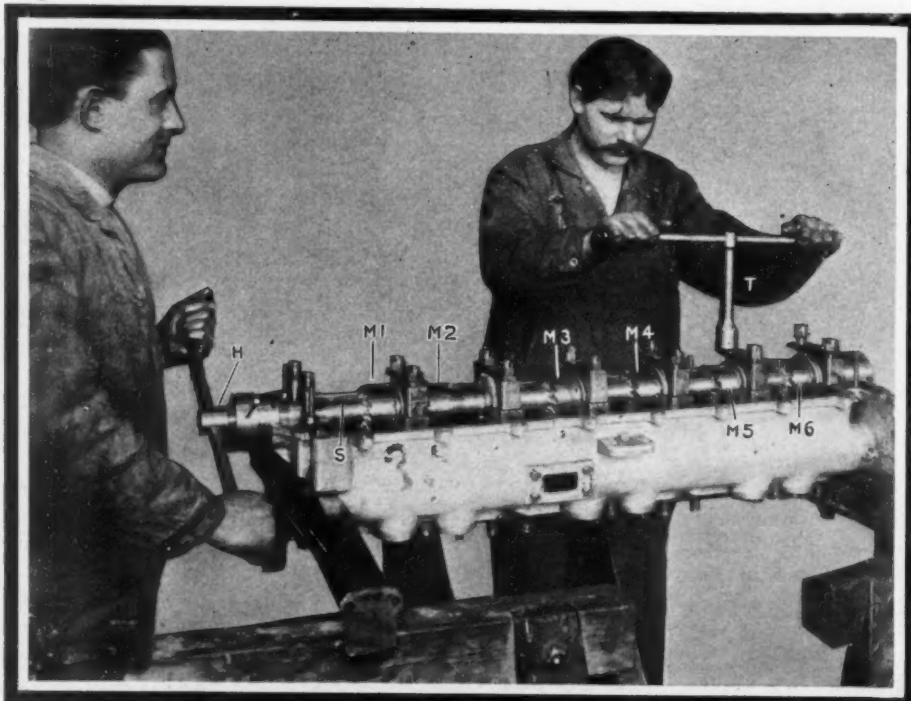


Fig. 1—Method of milling the sides of engine bearings to give the required amount of lateral travel to the crankshaft

ings lies chiefly in their ready reduction to a smooth surface after any local impairment of the surface, such as would result from the introduction of foreign metal between the moving surface and the bearing. Under these circumstances the soft alloys flow or squeeze from the pressure into the irregularity, forming a larger area for the distribution of the pressure, thus diminishing its amount per unit of area. Further, the larger the area over which the pressure is extended the less becomes the liability to over-heating and consequent binding.

Lead flows more easily than any of the common metals under pressure, and hence it has the greatest anti-frictional properties. "Of course," says *Machinery*, "a number of metals exceed lead in this property, but their cost or some other factor renders them unavailable. Lead is the cheapest of the metals, except iron, and in comparison to the other metals used in the formation of bearing alloys their relative prices are somewhat in the following order per one hundred pounds: Lead, \$4; zinc, \$5; antimony, \$9; copper, \$13; and tin, \$30 or more. It can thus be seen that the more lead that is used in a given bearing, the softer it is, the less friction it possesses, and the cheaper it can be furnished. It is, however, too soft to be used alone, as it cannot be retained in the recesses of the bearing even when used simply as a liner and run into a shell of brass, bronze or gun-metal or some other alloy. Various other metals have been alloyed with it, such as tin, antimony, copper, zinc, iron and a number of non-metallic compounds, such as sodium, phosphorus, carbon, etc., and the effect of the different ingredients is to-day fairly well understood."

If antimony is added to the lead it increases its hardness and brittleness, and if tin is added as well it makes a tougher alloy than lead or antimony alone. Nearly all of the various babbitt metals on the market are alloys of lead, tin and antimony in various proportions, with or without other ingredients added. In such babbitts, the wear increases with the antimony as a general thing, and the price with the tin. The higher antimony babbitts are used in heavy machinery, as they are harder, while those poor in antimony are used in high-speed machinery.

The first babbitt is a fairly good alloy for high-speed machinery, but is not very hard. Its melting point is about 500 degrees F.; in fact, the properties of all alloys or bearing metals can be very widely deduced from their melting point. The second babbitt is somewhat harder and melts at a higher point. Both of these are used largely for lining purposes. The fourth babbitt is used very widely for heavy machinery.

Babbitt 6 has good wearing properties but cannot be used for high speeds. Most of the other metals included in the table where copper is not used in excess can be regarded as in the same class as babbitts.

The other alloys included in the table consist to a very great extent of copper, tin, and lead, and usually have a thin liner of lead or some soft babbitt, and hence wear much better than an entire bearing of the soft babbitt. The tendency to wear decreases with increase of lead and increase of tin. Increase of lead, of course, diminishes the frictional effect of the alloy and hence its heating properties. A certain amount of other metal, however, is necessary to keep the lead from separating from the copper.

A rather interesting thing about the alloys containing sodium is based upon the fact that sodium by oxidation produces a material which will saponify with the oil used in the bearing and produce soap, thus assisting lubrication. The

extent and amount of such action is scarcely as yet understood, and practically no experiments have been made with this investigation in view.

Comparatively little progress has been made along investigations covering all possible alloys of different materials in different proportions. The recent introduction and placing on the market of a large number of metals, such as calcium, etc., very common in nature, and ultimately bound to be furnished at a very low rate, and many of them possessing very suitable properties for bearing alloys, is undoubtedly bound to influence the situation; and various engineering devices, such as the steel grid, recently developed, will undoubtedly receive attention in the immediate future with consequent increase in efficiency in this field.

COMPOSITION OF BEARING METALS

Alloys.	Lead.	Tin.	Anti-mony.	Cop- per.	Zinc.	Other constituents.
Babbitt 1.....	80.00	20.0	.....	.....	.....	.....
Babbitt 2.....	72.0	21.0	7.0	.....	.....	.....
Babbitt 3.....	70.0	10.0	20.0	.....	.....	.....
Babbitt 4.....	80.5	11.5	7.5	0.5	.....	.....
Babbitt 5.....	0.5	68.0	.....	1.0	31.5	.....
Babbitt 6.....	20.0	.....	.....	.....	80.0	.....
Babbitt 7.....	86.0	10.0	4.0	.....	.....	.....
White metal.....	82.0	.....	12.0	6.0	.....	.....
White brass.....	64.0	.....	2.00	34.0	.....	.....
Magnolia metal.....	80.00	4.75	15.0	trace	.....	Bi = 0.25
Car brass lining.....	80.5	11.5	7.5	0.5	.....	.....
Ajax plastic bronze.....	30.0	5.0	.....	65.0	.....	.....
Ajax metal.....	11.5	11.5	.....	77.0	.....	.....
P. R. R. car brass, B.....	15.0	8.0	.....	77.0	.....	P = 0.80
S bearing metal.....	9.5	10.0	.....	79.7	.....	.....
Delta metal.....	5.1	2.4	.....	92.4	.....	Fe = 0.1
Camelia metal.....	14.8	4.3	.....	70.2	10.2	Fe = 0.5
Tempered lead.....	98.5	0.08	.....	0.11	.....	Na = 1.30

Bi = bismuth; P = phosphorus; Fe = iron; Na = sodium.

The illustrations with this article were taken at the repair shop of the New York agency of the Pierce-Arrow.

Rubber in Mexico—Apropos of the present troubles there, it is interesting to note that rubber-tapping goes on practically the year around in certain parts of Mexico. A complete modern electrical plant has been built at La Zacualpa. Indians are employed to do the work, receiving twenty-five cents and rations per day. They are paid at the end of each month. The men are allowed to draw upon the companies' stores in the vicinity for current needs. A local band, made up of the workmen, furnishes divertissement after working hours. There are schools and churches.

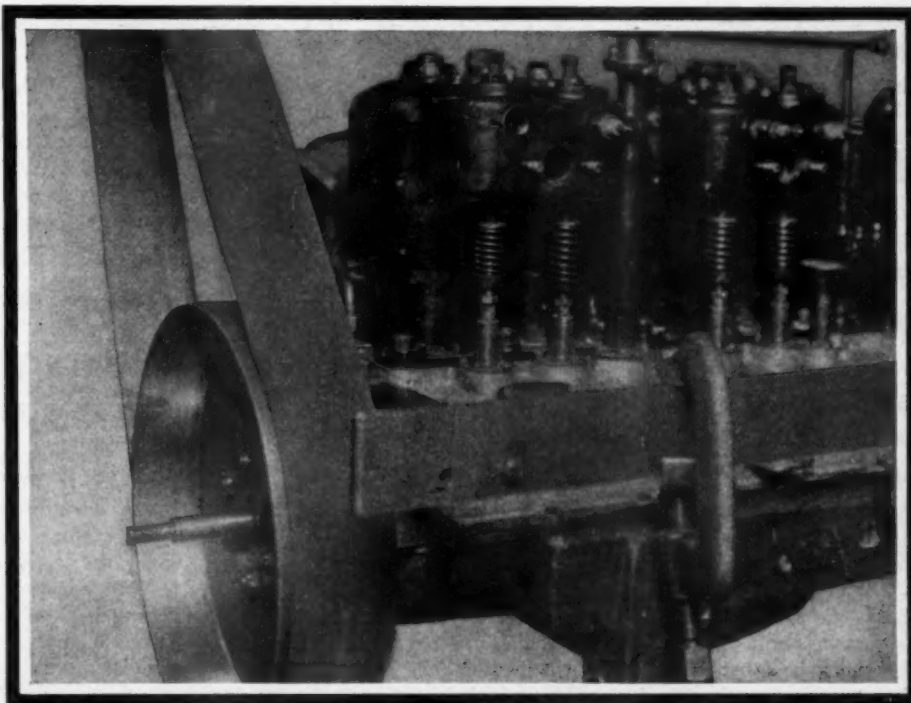


Fig. 2—Running a motor from the machinery shafting by a belt attached to the flywheel and a useful method of forming a stay for the motor that can be used as a turntable as well

It Stands to Reason That Eternal Vigilance Is the Price of Success of the Man Who Purchases an Automobile as Well as of the Peace of Mind of a Guardian of the Peace

That the men of the stone age did not get far; they had to take along a carload of ignorance.

That the bone-heads before the Christian Era were unable to cart their superstitions even as far as a dump.

That the Romans perished for want of sense; had they gone in for automobiles Rome would have been an Empire down to this day.

That Napoleon went to St. Helena as the price of his big conceit and lack of transportation methods for the Grand Army.

That small progress is made by those who adhere to the implements of the past.

That farmers in a small way would be lords of creation were they fitted out with automobiles.

That farmers must be taught to advocate good roads in order to make the automobiles that they are buying as effective as possible.

That a poor farmer always resides on a bad road.

That men of means have good roads on which to butt their property; does the road make the man rich or does the rich man select a good road to live beside?

That a community is said to be rich if the roads are improved. Is it strange? Can a man be expected to get rich if the roads are so bad that he cannot deliver his products to a market?

That the future is to be bright because freight automobiles are to make the farmer independent of the railroad.

That the time must come when railroads will have to compete with the individual.

That automobiles will have to be designed and constructed on a standardized basis before the day of competition with railroads will come.

That more than half of the success of railroad transportation is due to the standardizing work which has been done by the master car-builders.

That automobiles are well on the way of standardization, otherwise the excellence of the service they render would be dim.

That unsatisfactory service, if such there is, represents nothing short of mismanagement on the part of the merchants who adhere to horse methods with a tenacity that should be the envy of a leach.

That freight automobiles will be a great success when "leach" methods along proper lines are instituted.

That men who know all about delivering goods with horse-drawn vehicles know nothing about the newer mechanical method.

That it is the cost of the delivery of goods that should be counted rather than the cost of the freight automobile that is used in the process.

That nearly all the failures come from doing things on a half-baked basis as the result of having incompetent cheap help.

That the success depends upon throwing the cheap help away and getting capable persons to display their wares.

That some of the difficulties that now stand in the way of the success of the freight automobile are purely local and must be attributed to other than automobile causes.

That "waiting in the line," so-called, is a habit that checks up exactly with the underlying characteristics of a lazy truckman.

That there will be no waiting in the line when terminal facilities are re-arranged on an automobile basis.

That insurance exchanges are not attending to their own business when they attempt to debar automobiles from delivering goods on piers and other terminals.

That events have proven that the heads of insurance exchanges showed their lack of progress when they put a ban on automobile delivery methods to the extent that they debarred them from the docks in New York.

That the fact that this ban was lifted is proof positive of the lack of knowledge of the men who were responsible for it.

That the automobile business has long suffered from this class of bungling and interference.

That it is about time to tell the bunglers and interferers to jump off.

That there will be no occasion for holding a net at the spot where they land.

That a bone-head would scarcely be damaged were it to land on a hard spot so that a net would be superfluous.

That right is might, and that the automobile type of transport is the latest and most approved definition of the word "right."

That a cheap imitation of a freight automobile will be given a preference by the type of merchant who is peering into the abyss of failure.

That when the eruption comes this type of merchant will be the first of the debris that will be brushed off the lips of the crater.

That volcanic eruptions take place among men, even though it may be an earth phenomenon primarily.

That in counting the most successful merchants in any given metropolis on the five fingers of the right hand, it is the same as counting the merchants who make deliveries of goods on the very day that they are ordered.

That the women who are relied upon for patronage of department stores are noted for their patience—they forbear long enough to find a store that will promptly deliver the goods that they order.

That success depends upon making a favorable impression.

That a prompt delivery, using a freight automobile for the purpose, produces that favorable impression.

China Not a Motor Paradise

Why the Automobile Has Not Become Popular in the Flowery Kingdom

THE average Chinese street is too narrow to allow wheeled vehicles to pass or in fact to be used. But the great obstacle to an enormous trade in motor cars in China is the absence of roads. A Chinese road is simply a cart track winding across the country. It is always very narrow. The only vehicle used outside the cities is a heavy wooden two-wheeled cart drawn by horses or donkeys. In the rainy season these roads are quagmires. In the hilly regions the roads become watercourses in the rainy season and the action of the water converts them into cuttings or ditches far below the average level of the country. On one stretch of road near Peking the track way is 12 to 15 feet below the general level.

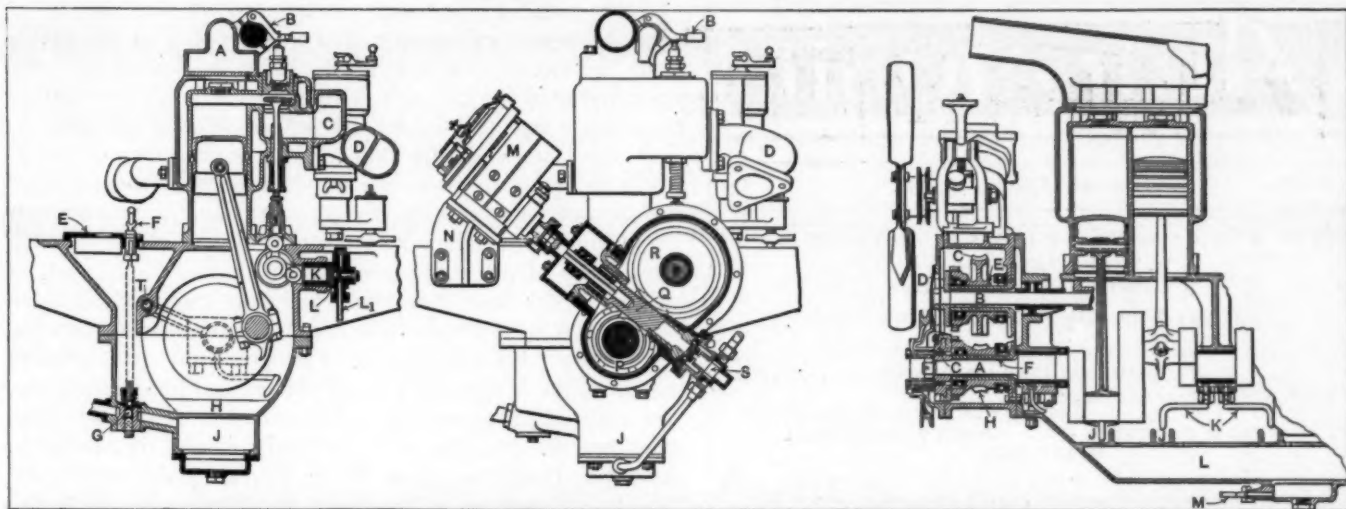


Fig. 1—Oiling arrangements, plug cut-out switches and pressure pump

Fig. 2—Showing worm drive of timing gears

Fig. 3—Longitudinal section of engine showing worm drive distributor and oil sump

Novel Distribution Gears

Worm Adapted to Timing Gears in English Sheffield Simplex Car

A SPECIAL feature of this engine is the method adopted for driving the camshaft magneto and oil pump S (Fig. 2). On the forward end of the crankshaft A is a worm wheel F (Fig. 3) which communicates the drive to the driven wheel R (Fig. 2) on the camshaft B by a worm set between them at an angle of 45 degrees. The worm is carried in plain bearings and drives the magneto and oil pump spindle through driving dogs at each end. Between the pump and the magneto are placed two sets of ball thrust bearings to take the thrust of the worm. The magneto shaft is squared and drops into a square sleeve set in the upper end of the worm Q, the armature spindle of the magneto being rotated from this shaft by a dog drive in the usual way. The magneto M is carried on a special bracket N, present-

ing the working face in an accessible position. The worm wheels P and R are not fixed to the cam and crankshafts, but rotate on an overhanging sleeve carried on the walls of the distribution gearcase and are driven at the outer ends by driving dogs C and D secured to the ends of the shafts A and B (Fig. 3). The starting ratchet and pulley wheel are bolted to the forward face of the crankshaft driving dog C and do not attach direct to the crankshaft A.

The lubrication embodies the pump (S) and trough (J) principle, oil being drawn from the filter sump in the lower part of the crank chamber through the pipe M and forced through the pipe T to the crankshaft bearings and through leads K to replenish the troughs J (Fig. 2) formed in the false bottom H (Fig. 1). The oil level is retained in the separate distribution gear chamber and is always sufficient to immerse the worm.

The air pressure pump K for pressure for the gasoline tank is conveniently situated as shown in Fig. 1, being operated by a cam on the camshaft, the air passing through L to the tank.

Coming Events

CATALOGUE OF FUTURE HAPPENINGS IN THE AUTOMOBILE WORLD THAT WILL HELP THE READER KEEP HIS DATES STRAIGHT—SHOWS, ANNUAL MEETINGS AND OTHER FIXTURES

Feb. 13-18.....Washington, D. C., Show, Convention Hall.
Feb. 13-18.....St. Louis, Mo., Fifth Annual Show, Coliseum.
Feb. 13-18.....Winnipeg, Man., First Annual Show, Winnipeg Motor Trades Association.
Feb. 13-19.....Kansas City, Mo., Annual Show, Motor Car Trade Association.
Feb. 14-19.....Dayton, O., Second Annual Show, Memorial Building.
Feb. 15-18.....Grand Rapids, Mich., Annual Show.
Feb. 18-25.....Minneapolis, Minn., Annual Show, Minneapolis Automobile Show Association, National Guard Armory.
Feb. 18-25.....Brooklyn, N. Y., Annual Show, Brooklyn Motor Vehicle Dealers' Association, 23d Regt. Armory.
Feb. 18-25.....Binghamton, N. Y., Second Annual Show, Binghamton Automobile Club and Chamber of Commerce, State Armory.
Feb. 18-25.....Newark, N. J., Fourth Annual Show, New Jersey Automobile Exhibition Co.
Feb. 18-25.....Albany, N. Y., Annual Show, Albany Automobile Association, State Armory.
Feb. 18-Mar. 4.....Cleveland, O., Annual Show, Cleveland Automobile Show Company.
Feb. 20-25.....Cincinnati, O., Annual Show, Cincinnati Automobile Dealers' Association.
Feb. 20-25.....Portland, Me., Sixth Annual Show, Auditorium.
Feb. 20-26.....Omaha, Neb., Annual Show, Omaha Automobile Association.
Feb. 20-25.....Hartford, Conn., Fourth Annual Show, Hartford Automobile Dealers' Association, Foot Guards Armory.
Feb. 21-25.....Baltimore, Md., Annual Show, Automobile Club of Maryland, Fifth Regiment Armory.
Feb. 24-27.....New Orleans, La., Annual Show, New Orleans Automobile Club.

Feb. 25-Mar. 4.....Toronto, Ont., Automobile Show, Ontario Motor League.
Feb. 25-Mar. 4.....Kansas City, Mo., Fifth Annual Show, Kansas City Automobile Dealers' Association, Convention Hall.
Feb. 25-Mar. 4.....Harrisburg, Pa., Second Annual Show, Automobile Dealers' Association of Harrisburg, Third Street Car Barns.
Feb. 28-Mar. 4.....Sioux City, Iowa, Second Annual Show, Sioux City Automobile Dealers' Association, Auditorium.
Mar. 4-11.....Boston, Mechanics' Building, Ninth Annual Show, Licensed Automobile Dealers' Association.
Mar. 4-11.....San Francisco, Cal., Annual Show, San Francisco Motor Club.
Mar. 7-11.....Des Moines, Ia., Third Annual Show, Des Moines Automobile Dealers' Association, Coliseum.
Mar. 14-18.....Syracuse, N. Y., Third Annual Show, Syracuse Automobile Dealers' Association, State Armory.
Mar. 14-18.....Denver, Col., Annual Automobile Show, Management Motor Field, Colorado Auditorium.
Mar. 15-18.....Louisville, Ky., Annual Show, Louisville Automobile Dealers' Association, First Regiment Armory.
Mar. 18-25.....Pittsburg, Annual Show, Pittsburg Auto Show Association (Inc.), Exposition Hall.
Mar. 25-Apr. 1.....Buffalo, N. Y., Fourth Power Boat and Sportsmen's Show, Sixty-fifth Regiment Arsenal, Buffalo Launch Club.
Mar. 25-Apr. 8.....Pittsburg, Fifth Annual Show, Duquesne Garden, First Week, Pleasure Cars; Second Week, Commercial Trucks, Automobile Dealers' Association of Pittsburg, Inc.
Apr. 1-8.....Montreal, Can., Automobile and Motor Boat Show, Automobile and Aero Club of Canada.

THE AUTOMOBILE

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No. 7

THE CLASS JOURNAL COMPANY

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The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly), July, 1907.

THE rank injustice of the bill before Congress to practically quadruple the postal rate on periodicals, *except newspapers*, warrants the restraining influence of every patron of the periodical press. Whatever increases the cost of a product must eventually be borne by the consumer, unless the production is enjoying abnormal profit. Statistics show that legitimate publishers secure a fair average of profit with the ordinary manufacture fully proportionate to the effort and intelligence expended. The burden of the abnormal increase must therefore be borne by the periodical patron.

Neither will the patrons be misled by flaunting the postal deficit as an excuse for the raid. The patrons are business men, many of whom would guarantee to perform the postal service, pay all its attendant necessary expenses, and a bonus to the Government for the privilege. They would destroy the Congressional bulwark of fat-salaried postmasters, establish a parcels post without reference to the express companies, and purchase buildings and freight transportation for what others pay for the same conveniences. These reforms would readily relieve the deficit situation. The publisher is not a political parasite; he does not ask for special privileges or a free ride at the expense of the Government; he is willing to pay the cost of the transportation of his product; but he does object to being precipitately tacked onto an appropriation bill as a rider, to rank discrimination among his class, and to being stigmatized for creating a deficit where no such item should appear.

FREQUENTLY there is aroused in the minds of readers of papers that are devoted to the arts—and the automobile art is no exception—questions relative to the scope of such papers, and it is quite apparent that not a few of the readers harbor impressions that do not check up with the facts. The main difficulty seems to be in trying to make out the difference between a mere trade paper and an educational magazine. A trade paper is nothing more nor less than a means of circulating the gossip of the trade, coupled with advertising, such as it has, of the accessories and products that will be more of interest to the members of the trade than otherwise. The trade paper, viewed in a proper light, is a general house organ. Against this is the educational magazine, the authoritative medium of transmission of the information that the patrons of the industry would, of necessity, have to obtain for them to be able to make intelligent selections, and it is in these mediums also that the makers of automobiles would expect to see such clear explanations of the uses of accessories that they would be able to judge of their value from a possible purchaser's point of view.

* * *

BECAUSE educational magazines are such, they must be conservative. It is for them to tell the truth. It is not for them to space unsubstantiated publicity. They must not mislead the reader. It is better for them to delay making a statement than to give credence to that which may prove to be false. It is to the interest of the makers of automobiles to help an educational magazine to maintain the standing that truth is sure to extend to it. It is to the interest of the patrons of the industry to support educational magazines, primarily on account of the scarcity of such mediums, but in any case in view of the pressing demand for reliable information. It will be understood by those who have had experience that the practice of trade mediums of publishing "trade vapor" has had the effect of inducing quite a number of those who are interested in the trade to demand this class of publicity of the educational magazines, and to some extent this matter has found its way into the columns of the educational press.

* * *

THANKS to the good sense of the makers of automobiles and accessories, also to the tolerance of the patrons of the industry, the educational mediums are being importuned for publicity less to-day than they ever were before, and it is now possible to proclaim that the automobile industry has so far progressed that there is little or no desire, on the part of advertisers, to have the purity of the educational mediums contaminated by statements that are not founded upon 100 per cent. of truth. The educational mediums have a duty to perform that is more difficult than the work of the trade papers; it is necessary for the educational mediums to obtain exact information relative to everything that is spaced, and this is at the price of a capable corps of editors, remembering that it takes just as capable an engineer to describe all the types of automobiles and accessories that are made as it does to build any one make of automobile or accessory. It is plainly evident that the editorial engineer must see at a glance what each designing engineer may have accomplished.

News Section

Happenings of the Week in Various Parts of the Country as Gathered by the 85 Special Writers and Correspondents of "The Automobile"

Federation of Trade Press Associations Protests Against the Threatened Raise in Postage Rates—News of the Local Shows: Davenport, St. Louis and Dayton Exhibitions Now in Progress—Ex-President Raymond of the M. & A. M., Tells Why the Palace Show Failed to Secure a Sanction from the Association—Washington Show Opens on Lincoln's Birthday—Preparing for the Big Brooklyn Event—Short News of All Sorts.

Trade Press Protests Against 4-Cent Rate

Following is a circular letter just issued by the Federation of Trade Press Associations to the members of the Senate of the United States protesting against the law by which it is proposed to raise the postage rates on second class matter to four cents a pound:

"To the Senators of the United States:

"Peculiar circumstances surround the amendment to the pending Post Office appropriation bill proposing to increase several fold the second class postage rate for most periodicals.

"The arguments against any change in this rate, which the publishers included in our organization have thought proper to submit, are to be found in the reports of hearings in recent years by Congressional committees. We will not repeat them here, but venture to reassert their validity and to point out the unpopularity of all propositions to raise the second class rate, proved by the fact that upon each previous attempt the protests of voters received by members of Congress have entirely outclassed in volume and emphasis the objections of publishers. The people know for whose benefit Congress, in 1885, without notice of its intention to the publishers, lowered the rate from two cents to one cent; and they know to whose benefit the change has primarily operated; so that the false cry of 'a subsidy to the publishers' does not deceive them for a moment.

"Leaving the records, then, to testify as to the desirability of altering the existing rate let us look at the pending amendment. We speak the more frankly because of the general belief that the idea embodied in this amendment did not originate in your honorable body. Every attempt to break into the second class law by siege having failed, the effort is now made to get in by surprise, not only without notice, but after what has heretofore passed as trustworthy assurance to the contrary, there is thrown onto the back of an appropriation bill a 'rider' embodying the most objectionable measure of the kind ever proposed. Please examine its leading features.

"Periodical publications other than newspapers.' Who shall say what are and what are not newspapers? Many of the publications in our federation are newspapers; that is, they collect by reporters, by paid correspondents and by telegraph all the current news they can secure of the markets, the statistics, the inventions, and the traffic of the industries they serve. If they ceased to be primarily newspapers they would cease to exist. And yet the intellect which could evolve this amendment might well be capable of deciding, despite the existing law, that because they are not large loose sheets of ordinary print paper they cannot be regarded as newspapers.

"Provided that the increased rate shall not apply to publications mailing less than 4,000 pounds of each issue.' Does this treat us as equal before the law? Under this arbitrary provision a publisher mailing 3,900 pounds would have an advantage of some \$4,000 a year over his competitor mailing 4,100 pounds. This would be, in truth, a 'subsidy to the publisher': a subsidy falling at random upon the just and upon the unjust.

"And on sheets of any publication, etc.' What is a sheet? Is it the unit of paper as fed to the press and the folding machine? Is it what remains integral after the ends of the folded sheet have been opened by the cutting machine? Is it a single leaf constituting one-half of one of these integral portions? And if a certain Post Office administration decides this question one way, may not its successor decide it another? This point is of vital importance; for the amendment prescribes a prohibitive rate of postage for the entire 'sheet' containing one line of advertising, though the whole of its remaining space were filled with the uplift, or even were devoted to recording the remarks of members of your august body.

"Sheets . . . containing, in whole or part, any advertisement, whether display, descriptive or textual.' Probably no senator has forgotten the definition of war furnished by that undoubted expert, General W. T. Sherman. This clause of the amendment provides for the Post Office and the publishers a permanent condition corresponding to that which the General had in mind. It furnishes to the weekly publisher the assurance of at least fifty-two pitifully unequal contests with his Government as represented by local postal officials of various mental endowments, together with the possibility of as many more skirmishes as there may arise occasions for mailing copies of various issues in a single package. The only possible merit of this provision is the employment it would provide for additional accountants in the publishing and Post Offices.

"Shall be four cents a pound or fraction thereof.' The published estimate of the Department is that this rate would increase the revenue by five millions. The unanimous testimony of the publish-

ing fraternity is that comparatively few publications would long survive this rate. Supposing the second class tonnage to be reduced only one-half and the Department to be left with its present contracts and pay-roll, what would be the net gain to the Government as the result of the destruction of one of the leading industries?

"Again, the Department figures that the second class now falls short of paying its way by some \$60,000,000(!) Why then propose a measure which, while crippling the industry, would, by hypothesis, fail of rendering it self-supporting by nearly \$55,000,000; unless, indeed, the crippling of a part, at least, of the industry were considered an end desirable in itself?

"The avowed purpose of the amendment is to tax advertising only, although it is so worded as to involve nearly the whole of very many important publications. But this discrimination could only be advocated by those who ignore the prime economic function of advertisements in periodicals. Apart from the fact that they are universally desired and read—otherwise they would not be attainable—the advertisements are by far the most powerful instrumentality in carrying out the expressed intention of Congress when the present law was enacted, namely, to encourage and cheapen the dissemination of useful information, etc. During the whole life of this law, subscription prices as a whole have remained stationary or have tended downward, while the quality, size and cost of periodicals have gone up by leaps and bounds. Advertising alone has enabled the co-existence of these two conditions. Equally with the cheap postage rate itself has it contributed to effectuate the policy of Congress as laid down in the law of 1885. And now, unless that policy is to be abandoned by the deliberate act of the Federal legislature, it is illogical to propose to repress by special taxation this potent ally of Congressional will. Whatever abuses have arisen under the present law this clearly is not the direction in which to seek the remedy.

"The conclusion is inevitable that the proposals of this amendment, forced upon the notice of Congress in its closing hours, are not scientific, are not just and are not born of knowledge. They are calculated to cause confusion and dissension in application, and to work great and unnecessary damage without assuring any compensating benefit.

"The Federation of Trade Press Associations opposes this amendment on these grounds:

1. It is unscientific.
2. It is discriminatory.
3. It is unworkable.
4. It is confiscatory.
5. It is not adapted to its avowed purpose.
6. It contravenes the will of Congress.

"We therefore urge that it be dropped from the bill."

Framing the Contest Rules

CHICAGO, Feb. 11—Chairman S. M. Butler, chairman of the Contest Board, has been in the city for two days formulating rules for commercial truck tests and also revising rules for 1911 reliability contests. The Manufacturers' Contest Association rules committee, under the chairmanship of Howard Marmon, has also been in executive session trying to work out what is best in the line of commercial car contest rules.

It is generally conceded that many of the commercial car contests held during the past Fall were anything but satisfactory, in view of the fact that the results obtained were misleading in many respects. Some manufacturers tried to convince the public that the cost of gasoline and oil was a criterion of the cost of operating motor trucks. This is as misleading as would be a statement to the effect that the cost of electricity on the Pennsylvania 18-hour special would represent the cost of running this train from Chicago to New York. The cost of gasoline and oil is scarcely 10 per cent. of the operating expenses of the truck.

Farmers Throng Davenport's Second Annual Show

DAVENPORT, IA., Feb. 13—The second annual automobile show of the Davenport Automobile Club, held in the Coliseum, came to a close Saturday night. The show began February 9 and was attended each day by large crowds, the majority of those present being from out of the tri-cities. On Friday, the special day, when double admission was charged, there were 2,000 paid admissions. The majority of these were Iowa farmers.

Decorations in the Coliseum were elaborate, including a colonial colonnade of green and white and hundreds of electric bulbs shaded with Chinese lanterns. Palms were banked on the stage at one end of the exposition and programs of vocal and instrumental music were features every evening.

Indications are, that during the coming motoring season, this section of the Middle West will buy more automobiles than during any other period of similar length in the past. The attendance at the Davenport show this year was more than twice the size of that of last year, and the floor space used was doubled.

Exhibits were arranged as follows:

North center—Buick, Oldsmobile and Pierce-Arrow.

North side—Ford, Velie, Interstate, E-M-F, Flanders and International Harvester Co.

South center—Midland, Ohio Electric, Packard and Cadillac.

South side—Maxwell, Cole "30," R. and L. Electric, Halliday, White (gasoline) and Hupmobile.

A Sternberg truck was also on display.

Dayton Dealers Give Fine Show

DAYTON, O., Feb. 13—Although the weather was rather inclement there was a splendid opening attendance at the annual automobile show held by the Dayton Automobile Dealers' Association at Memorial Hall. The exhibits consist of 28 booths exhibiting more than 30 different makes of cars, totaling 100 models and a fairly complete line of accessories of all kinds.

The exhibits included the following:

Standard Automobile Co., Hudson and Marmon; G. W. Shroyer & Co., Cadillac, Pierce-Arrow, Columbus Electric and Hupp-Yeats Electric; Montgomery County Auto Co., E-M-F, Studebaker Electric, Studebaker, Studebaker-Garford and Flanders; Ooley Motor Car Co., Chalmers and Packard; Homestead Auto Co., Olds and Oakland; Dayton Electric Car Co., Dayton Electric; Dayton Automobile Co., Stoddard-Dayton;

Miami Valley Automobile Co., Hupmobile and Reo; Hosler-Overland Sales Co., Overland; Packham Motor Car Co., Locomobile, Buick, Peerless, White, and Baker-Electric; Dayton Auto Truck, The "Dayton"; Emrick & Sherer Co., Ford and Rambler; Speedwell Motor Car Co., Speedwell; West Side Motor Car Co., Regal, and Great Western Motor Car Co., Great Western.

Accessories—W. B. Schaeffer & Co., Niehaus & Dohse Co., Charles C. Fletcher, Patterson Tool & Supply Co., L. C. R. Storage Battery Co., Multiple Jet Carburetor Co., Standard Oil Co., Chas. H. Moore Oil Co., King Top Manufacturing Co., Myers Top Co., American Oil Pump and Tank Co.

Moving Pictures at Newark Show

NEWARK, N. J., Feb. 13—With the week of the local automobile show's opening at hand, the preparations indicate that in point of exhibits and special features the event will far and away surpass any of the three previous exhibitions.

Among the newest items of attraction announced for the show is the engagement of the Empire Woman's Orchestra, of Boston, to play the concert music. In addition a series of moving pictures has been provided for, including the recent Savannah races and road contests here and abroad and views of aeroplane flights.

Rain Mars Kansas City Opening

KANSAS CITY, Mo., Feb. 13—The second annual automobile show of the Kansas City Motor Car Trade Association opened to-night under unfavorable weather conditions, but, despite the rain, the attendance was fair. The hall where the show is being held is decorated according to the Italian style and makes a good impression. The exhibits consist of 36 makes of gasoline pleasure cars, 9 electrics and 13 trucks.

Planning for Next Year's Show

CHICAGO, Feb. 13—Show plans for 1912 so far as Chicago is concerned have been tentatively made by S. A. Miles, general manager of the National Association of Automobile Manufacturers, who to-day announced that the same program will be carried out a year hence as the one that just came to an end Saturday night when the doors finally closed on the commercial car show. The 1912 show will be held at just about the same period as the one of 1911—the first two weeks of February, but the scope of the affair will be broadened in that next time the First Regiment Armory will be in the show group for the full two weeks, which means that the commercial car show has jumped out of its swaddling clothes in its first year, and now demands another building.

Lozier to Move March 1

On March 1 the general offices of the Lozier Motor Co., heretofore located at 1751 Broadway, corner of Fifty-sixth street, New York City, will be removed to Detroit, Mich. The advertising department will be removed with other departments.



Interior of Coliseum, where the Davenport (Iowa) dealers are holding their show

Raymond Tells Why Palace Lacked Sanction

IN his annual resumé of the association work submitted to the Motor and Accessory Manufacturers President H. E. Raymond, whose term of office has since expired, reported as follows as to the reason that actuated the association in refusing to grant a sanction to the independent automobile show held early this year at the Grand Central Palace:

"The shows sanctioned, recognized by precedent and still present desire on the part of our general membership are: Association of Licensed Automobile Manufacturers, two weeks, New York City; National Association of Automobile Manufacturers, two weeks, Chicago; Boston Automobile Dealers' Association, one week, Boston.

"After all these shows had been exploited and sanctioned, all applications in the allotments made and all details settled, certain promoters commenced to agitate for another show to be held at the Grand Central Palace for one week just prior to the Madison Square Garden show. Your directors paid little attention to this show. We felt that the industry demanded fewer shows than more of them. There were among the firms to exhibit cars many we would have liked to co-operate with, but the principle of granting an eleventh-hour sanction, rushing our members in, possibly encouraging private promotion of shows at our expense, was too vital to warrant any other than refusal of sanction.

"The show had not secured a sanction at the hands of the National Association of Automobile Manufacturers. It had been refused by that body. There was no correct basis of consideration that would establish the propriety of granting such a sanction. We were not being asked to consider an application from any well-organized body of car builders. The venture was a personal one.

"As such, the action taken was proper. It is distressing to have to face possible additional show burdens. Last year we had four to carry, Atlanta, New York City, Chicago and Boston. Four weeks of disorganization of business. This year we have five weeks of the same thing. Two each in New York and Chicago and one in Boston. To have added this show would have been six weeks. We are entitled to safeguard ourselves against the growth of the unnecessary expense, the unequal burden on our end of the industry, the extension of time required from the legitimate prosecution of the upbuilding of our business. We desire to emphasize and make clear our reference to an unequal tax on us as contrasted with the car builder.

"The licensed car manufacturer has only to show at New York and Chicago one week each his pleasure cars. The few who manufacture trucks a second week. The unlicensed manufacturer one week in Chicago, and if he supports the Palace show, two weeks. The times are set far apart for him. The great majority of our members must show five weeks, a vastly greater number of exhibitors than the car builders, a vastly greater number of representatives in attendance. Self-protection demands careful thought to the question of sanction of additional shows, no matter how meritorious the claims for such seem to be, as made by the supporters. Individual members must approach this question with utmost unselfishness.

"Here and there occasional members, for one reason or another, which undoubtedly seem good to them, urge sanctions. The directors hope to serve to the best of their ability the inter-

ests of the membership as a whole. We conceive it destructive, not constructive, to maintain a policy that benefits a few at the expense of the many. There would be little gained to advancing the general industry, through this association, if we did any act that compelled an expenditure on the part of fifty or more members unwillingly to enable five or six members to carry out their will. That is not the spirit of association. It is the spirit of individualism, not co-operation for general good. Your directors have consistently, persistently, unselfishly sought to consider the greatest good for the greatest number."

St. Louis Show a Floral Bower

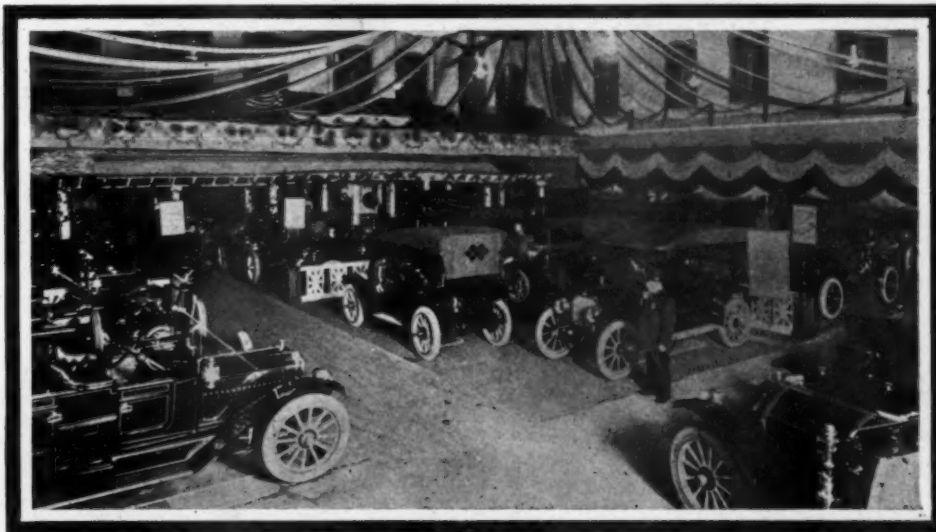
ST. LOUIS, Feb. 13.—The fifth annual motor car show held in St. Louis opened to-night with thirty-four exhibitors. While all the available space was comfortably filled, some of the cars which had been shown during former years were absent. This is due to a peculiar condition in the show situation at St. Louis. The dealers' association under whose auspices the shows have been held in previous years decided that the earlier exhibitions had not been a paying investment and determined to omit this year's show.

A great many of the dealers, however, believed that the opportunity to hold a show should be grasped and F. W. Payne, the manager of the Coliseum, agreed to promote the show himself. As a result of the difference of opinions among the dealers but little more than half of St. Louis motor car row is represented at the Coliseum.

The decorations of the Coliseum, in green and white, compare very favorably with those of any of the shows seen this year, and the profusion of smilax, flowers and ferns give a spring-like effect which is a great relief from the papier-mâché decorations of one of the larger shows. Of the 130 cars exhibited, 115 are pleasure cars.

Tells About the Brooklyn Show

Charles H. Green, manager of the coming Brooklyn automobile show, entertained the press and others at a dinner given at the Hardware Club last Thursday evening. Mr. Green outlined the preliminaries of the project to give Brooklyn a big show and predicted that it would be the first of a permanent annual series.



General view of the interior of the building in which the Worcester (Mass.) dealers held their recent show

Washington's Show Opened on Lincoln's Birthday

WASHINGTON, D. C., Feb. 13—In her evening clothes, Washington turned out to mark the opening of the Second Annual Automobile Show to-night at Convention Hall. The ancient building was arrayed in a brave display of color and all the surrounding streets were lined with private automobiles waiting while their owners were busy inside selecting successors to them, or noting the improvements that have been made in grace, construction and mechanism in the 1911 models.

It was a big crowd for an opener, being estimated from a third to one-half larger than last year, and the cars on show maintained about that proportion of increase in quality and quantity.

The interior of the hall is divided into two great blocks that extend the full length of the building, separated by a wide aisle. All around the four walls there are strung a fringe of exhibits, many of them displaying parts and accessories. There are 165 models of 1911 automobiles on show, embracing over fifty standard makes and five types of electrics. There was nothing exhibited in the way of completed cars that had not been shown at one or more displays earlier in the season. Several polished chassis of various makes and a gold-plated Washington were among the attractive features.

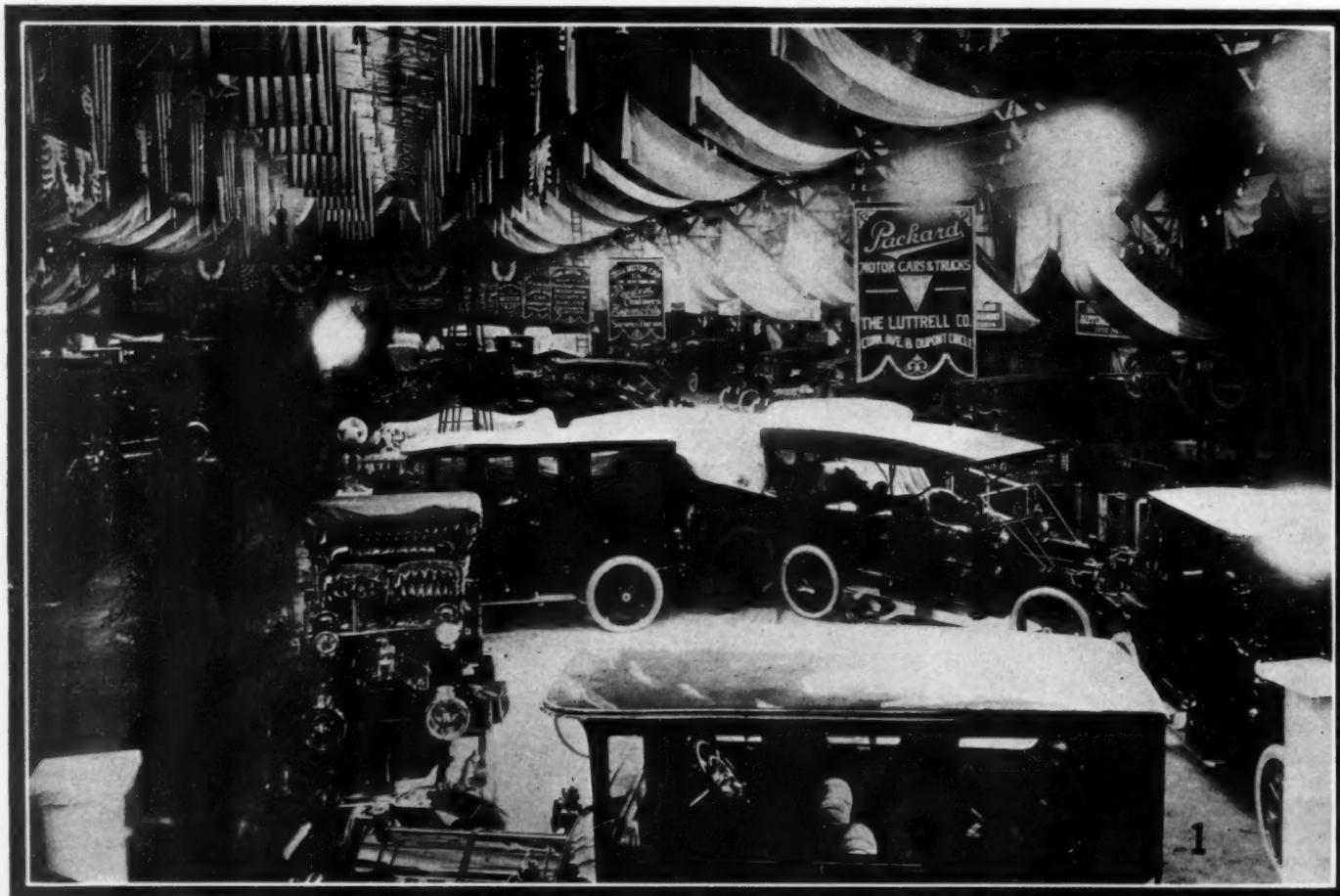
For a first night it was distinctly a business session and at the close not an exhibitor would admit that he had not practically sold from one to a dozen cars. The automobile season opens earlier in Washington than it does further north and the balmy air and full Spring moon gave the impression that the season of flowers was at hand and perhaps had something to do with the intense interest of the capital city in the automobile.

The decorative scheme was simple, consisting of a profusion of bunting, in which the national colors were the keynote, and palms, pines and cut flowers were used effectively to bring out the beauties of the cars.

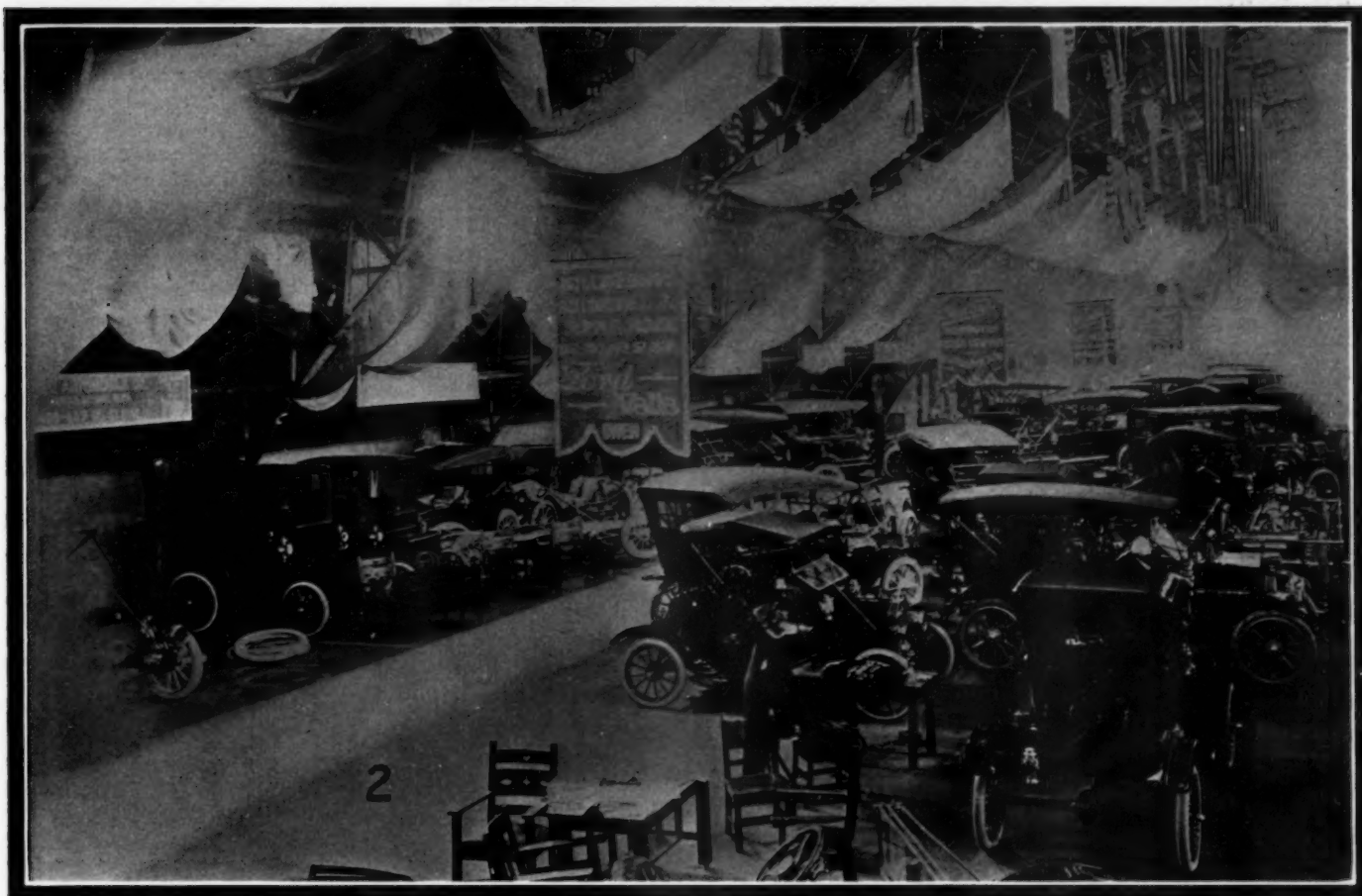
The show is given under the auspices of the Automobile Dealers' Association of Washington, of which the following are officials: W. C. Long, president; J. M. Stoddard, treasurer; J. R. Thomas, secretary; directors, Claude E. Miller, William Jose, A. Gary Carter, T. B. Spence, T. S. Johnston and S. A. Luttrell.

The exhibitors and the character of their displays were as follows:

Charles Miller & Brother: Ford, Velie and Owen.
 Overland Washington Motor Company: Overland.
 M. T. Pollick: Oldsmobile.
 Commercial Automobile & Supply Company: E-M-F, Flanders and Studebaker.
 United Motor Washington Company: Maxwell, Columbia.
 Cook & Stoddard Company: Pierce-Arrow, Cadillac and Baker Electric.
 Luttrell Company: Packard.
 Zell Motor Car Company: Chalmers, Peerless, Stevens-Duryea and Hupmobile.
 Pope Automobile Company: Pope-Hartford, Matheson, Everitt, Columbus Electric and Oakland.
 Carter Motor Car Corporation: Washington.
 Motor Sales Company: G. J. G. and Moon.
 Emerson & Orme: Detroit Electric, Apperson and Regal.
 Buick Motor Car Company: Buick and Welch.
 Empire Top Company: tops.
 Meridian Sales Company: tires.



GENERAL VIEW OF THE SECOND ANNUAL SHOW OF THE AUTOMOBILE DEALERS' ASSOCIATION OF WASHINGTON, D. C., IN CONVENTION HALL



VIEW OF EXHIBITS ALONG THE SOUTH AISLE OF CONVENTION HALL, WASHINGTON, D. C.

George W. Wells: Cutting.
 Reo Automobile Company: Reo.
 Terminal Taxicab Company: Woods Electric.
 The Wilson Company: Amplex, Cole and Krit.
 Hinds Automobile Company: Lion and Schacht.
 C. Barnard: Stoddard-Dayton.
 J. E. Sheldon: Rambler.
 The Stiles Company: McIntyre.
 Wine & Benson: Moline.
 R. Milton Norris: tops.
 Electric Speedometer Company: speedometers.
 Century Rubber Trading Company: tires.
 Selby Company: Paige-Detroit.
 Imperial Motor Company: White & Rauch and Lang Electric.
 Rudolph & West: general supplies.
 Theo. Barnes: Pullman and Bergdoll.
 N. S. Bowles: Warren-Detroit.
 J. N. Ebersole: Marion.
 Standard Oil Company: lubricants.
 National Electric Supply Company: supplies.
 Bowser Tank Company: tanks.
 David S. Hendricks: Thomas, Inter-State and Franklin.
 Locomobile Company: Locomobile.
 Frank G. Fickling: supplies.
 LeRoy Mark: insurance.
 Scott Demountable Rim Company: rims.
 Ed. H. Johansen: tires.

Washington As Good Roads Center

As the genial warmth of Spring trends Northward it arouses the sluggish blood of nature, but aside from causing the fields to bloom and the trees to take on their gala dress it stimulates interest in the automobile, and as good roads are an important part

of the motor car, interest is focused upon them, wherever there is interest in the automobile and motoring.

For this reason the automobile public of the capital and its surrounding territory is already beginning to notice road conditions, even though the northern half of the country is still locked in the arms of Winter. But there is a great big underlying reason for interest in good roads in Washington, aside from all these things. The capital is the center of the national good roads movement, because of the fact that it is the center of the country's government and activity along that line has its fountain head there.

So far the various State organizations devoted to the cause of improved highways have acted individually under varying and diversified sets of laws and the result, as far as national roads are concerned, has been somewhat on the order of patchwork. The government has done an immense amount of work here and there in conjunction with the State authorities by furnishing plans and supervision for road building and a measure of success has been achieved.

The plan under which the government has taken part in the movement toward road improvement had its inception in 1893, when the general highway system of the country could scarcely boast the name. Little or nothing had been spent on roads by the States for thirty years and the toll roads, those constructed and maintained by the working out of road taxes, and a few privately built highways represented the sum total of the American highway system. The toll-roads were wrong in principle, and experience has proved that they were wasteful and inexpedient. The method of working out road taxes was always a poor makeshift that brought nothing in the line of permanent improvement and the private enterprises were not of sufficient importance to have any effect on general conditions.

In 1893 an appropriation of \$10,000 was made to enable the Secretary of Agriculture to make inquiries into the systems of road management throughout the United States. He was authorized under the act to investigate methods of road-making and



The gold-plated Washington, a local product, attracted much attention

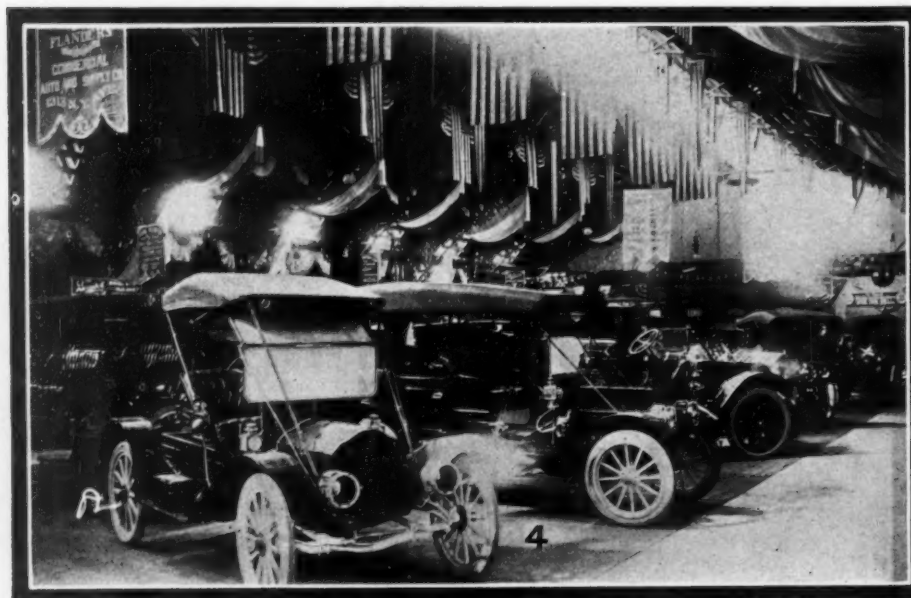
to disseminate information on the subject. The Office of Road Inquiry was the result.

For six years following the project was carried forward in a small way and in 1901 the appropriation was increased to \$14,000 and the act provided for collating, digesting, reporting and illustrating the results of experiments in road building.

The following year an appropriation of \$20,000 was made and a department of chemical and physical research into the character of road materials was made a leading feature of the work.

In 1905 the Office of Public Roads was provided by statute and to-day this section of the Department of Agriculture has grown to such an extent that it occupies elaborate quarters in Washington and is exceedingly busy. The annual appropriation for this office has been about \$116,000 a year for the past two years, and in the next appropriation measure something over \$165,000 has been approved by the Secretary of Agriculture.

The office has no administrative duties and exercises no control whatever over the roads of the United States, its functions being entirely scientific and educational. It is forbidden by statute from purchasing any road-making machinery, and save for government reservations, the national government makes no ap-



E-M-F, Flanders and Studebaker occupied commanding positions

propriations of any kind for roads.

There are 114 officials and employees on the rolls of the office, but the majority of these are engaged temporarily when the work requires their services.

The office is in charge of the Director of Public Roads and most of the employees are selected by competitive examination. Three separate divisions are utilized in carrying on the work. These are: The division of tests, which conducts the laboratory work; the highway division, which does the engineering work, and the division of road management, which includes the economic, statistical and miscellaneous work.

The routine testing of materials consists of microscopic and chemical analyses of road making materials and physical tests to determine their properties and characteristics. Special studies are also made of asphalts, oils, tars, compounds, emulsions, salts and solutions to prevent dust and to preserve road surfaces.

The laboratory is equipped with impact testing machines, scales and numerous instruments to determine the character of material, torsion machines, lathes and presses and much co-related equipment.

In the road material laboratory, which was established in 1900, 3,018 samples of road material from every State in the Union were tested up to 1908 to determine their value for the purpose.

The chemical laboratory is adequately fitted up to conduct analyses of rocks, clays, cements and bituminous substances, and to do work in various lines.

The division of highways, which is under control of the chief engineer of the office, is the department which is most in the eye of the public. The functions of this section are to investigate methods of construction and to give advice and practical demonstrations with regard to proper methods and materials. Dust preventives and surface preservatives come under this head also. It is the duty of this section to consider with much care the requirements of special localities, particularly those where no natural hard paving material is at hand, such as the section embraced in the delta of the Mississippi and in some of the prairie States. Treated clay has been a subject that has received much attention along this line, and experiments are now being made to determine its availability. Where natural material is lacking or for some other reason it is inadvisable to make permanent road improvements in certain sections, the Office of Public Roads does what it can to encourage the use of split-log drags to maintain the earth roads.

The chief industry of the office is the construction of what are termed "object-lesson and experimental roads." These are built for the purpose of giving practical instruction to local road builders of the methods of road making. The government, through the office, furnishes at its own expense surveys, estimates and specifications, supervises construction and gives theoretical instruction. The local authorities furnish the labor, machinery and materials.

Last year work was done on 57 of these experimental roads, according to

the official report of Logan Waller Page, director.

These included bituminous macadam, oil-gravel, macadam, gravel, sand-clay, earth, concrete, slag and brick. The material used covered over a million square yards of surface and represented an increase of nearly 50 per cent. over the preceding period.

These object-lesson roads are not long stretches of perfected highway, but in round terms may be described as being on an average of less than half a mile long. Some of them were built where conditions had been particularly bad; where it was next to impossible to haul a single bale of cotton or small load of produce to market when the roads were muddy. A careful system of daily reports and records were kept to show the cost of the improvement and the conditions under which it was installed.

All told, according to the report, some 275 experimental roads have been built in thirty-four States. As an illustration of the effect of this work, it is shown that on certain roads it was formerly impossible to haul any kind of a load in bad weather, and where good roads have been installed, a pair of horses can draw as much as twelve bales of cotton. Of course, in themselves the experimental roads have little practical value, but as a matter of education the difference between a bad road and a good one is so palpable that it has an immense influence over those who are obliged to use both kinds.

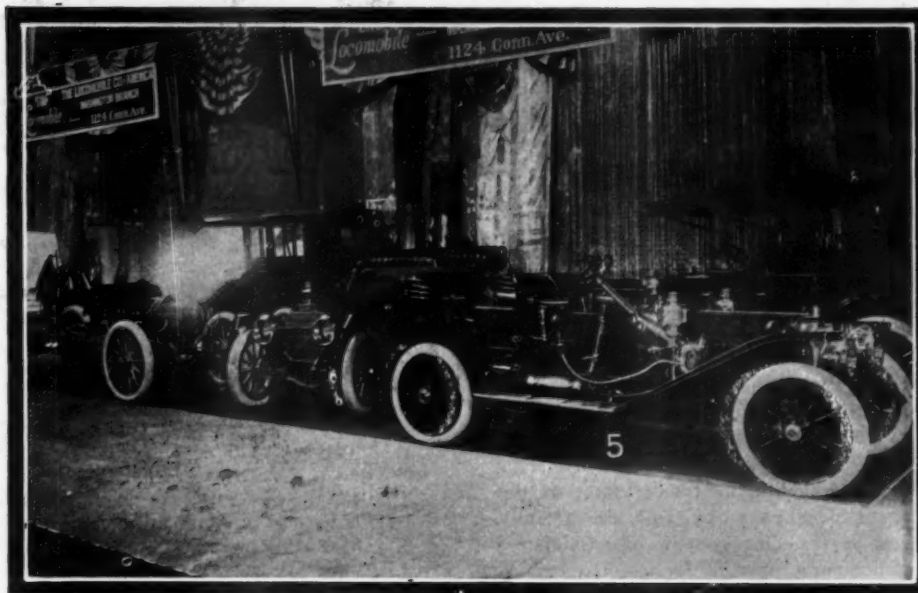
The division of road management co-operates with the other sections of the office in giving lectures on road subjects and disseminating information touching the subject. The statistical division is at present engaged in compiling a digest of the road laws of all the States and of the cost of road building in foreign lands.

The history of road improvement really began in 1891 when the State of New Jersey enacted a law known as State Aid, under which the State agreed to pay one-third of the expense of improving roads built under State supervision. Massachusetts and Vermont adopted State Aid in 1892, and Connecticut, New York, Maine and Rhode Island followed at intervals until 1902. At present there are twenty-two of the States that have laws based upon this idea, but differing in many essentials.

These include: California, Colorado, Connecticut, Delaware, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, Washington and West Virginia. In some of these States the law provides for paying the whole cost of State roads, as in California, in others it is a less proportion grading down to Ohio, which pays only one-quarter.

All the States referred to as having adopted State Aid have highways commissions or departments of various kinds and endowed with varying powers according to the statute by which they were created.

In other sections of the country the work of road construction and maintenance is under the jurisdiction of counties or townships. In fact, even in the States where they have State Aid,



A full line of Locomobiles were exhibited by the local branch

the county and township jurisdiction extends over purely local roads.

Under the county system the road taxes are assessed and collected by county officials, who divide the county into road districts, over which a supervisor has control. In the township system, the local roads are controlled by the vote of those subdivisions.

In speaking of the disadvantages of some phases of the highway situation, Director Page had the following to say:

"The county and township system of supervision of the roads, where it is based upon the 'working out' of the road rates instead of collecting the tax in money and expending it scientifically and economically for road improvements, has no business in the modern scheme of government. It is as thoroughly out of date as the muzzle-loading rifle, and worse. The way it works frequently is that it accomplishes no good whatever, the taxes being absolutely wasted. In the meantime the section is subjected to all the disadvantages of bad roads, with all that such a condition must mean.

"The experience of this country, covering a period of about 200 years, has demonstrated beyond all dispute that no general and



The Bergdoll "Thirty"—limousine and touring car—was prominent

lasting improvement of the public roads can be secured through any policy which leaves the responsibility and the burden to small civil subdivisions; that toll-roads are wrong in principle and wasteful and inefficient in practice; that statute labor and taxes paid in labor provide an undisciplined, unskilled and thoroughly inefficient class of labor; that trained and efficient supervision is necessary in road work just as well as it is in all other lines of human activity.

"While it is safe to say that American road builders construct improved roads equal, if not superior, to the improved roads of Europe, it must be admitted that except in a few of the States road maintenance has been sadly neglected, with the result that our best roads frequently go to ruin after a few years. Our systems of administration do not provide for adequate maintenance.

"If it is the intention of the country to maintain a graft for the ostensible benefit of farmers, it would be better to have it take some other form, because the very men who might seem to derive profit from its operations in reality are the chief sufferers.

"They avoid paying their road taxes in money, which might be spent for actual improvements that would mean everything that good roads mean in comparison with opposite conditions, and they gain absolutely nothing to set off against the lamentable road conditions that obtain in many States. The general run of road departments conducted under the township idea come within this classification and should be remedied."

Mr. Page is president of the American Association for Highway Improvement, an organization which was formed last fall with the object of harmonizing and correlating all efforts for the improvement of public roads, to the end that adequate and efficient systems of road construction, administration and maintenance may be adopted in all the States.

The officers of the association are W. C. Brown, president of the New York Central Lines, vice-president; Leo McClung, treasurer of the United States, treasurer, and Louis W. Hill, president of the Great Northern, chairman of the board of directors. The board of directors includes a number of railroad



Maxwell and Columbia lines were installed prominently along the main aisle

presidents, educators, editors and enthusiasts for good roads.

B. F. Yoakum, chairman of the board of directors of the Frisco system, made an enlightening explanation of the great interest of the railroads taken in the good roads movement when he said:

"In rapidly growing sections, such as Texas, there is a constant demand for new branch lines to care for traffic that at the time they are demanded would not prove sufficient to pay operating expenses. Where such branches are built in response to the demand, they often prove to be a burden rather than an aid to the company.

"With good roads, the freight that naturally would be hauled over these new branch lines would be hauled to shipping points by wagon or motor truck and the reason for the branch lines would be easily obviated. Good roads would greatly extend the economical radius within which freight can be handled by wagon.

"It is the intention of one of the railroads in Texas to adopt an unusual method of meeting a demand for a certain branch line. The community to which it was projected to build the road is capable of furnishing about five carloads of freight a day, which is insufficient to warrant the construction of the branch. In

order to get around the trouble, the road contemplates building a model road from the proposed junction point of its main line to the community that wants the branch railroad. It is then planned to install a sufficient number of ten-ton motor trucks to handle the freight and to put more on when the business warrants such action. The road will be patrolled and maintained in as perfect condition as possible by the railroad company.

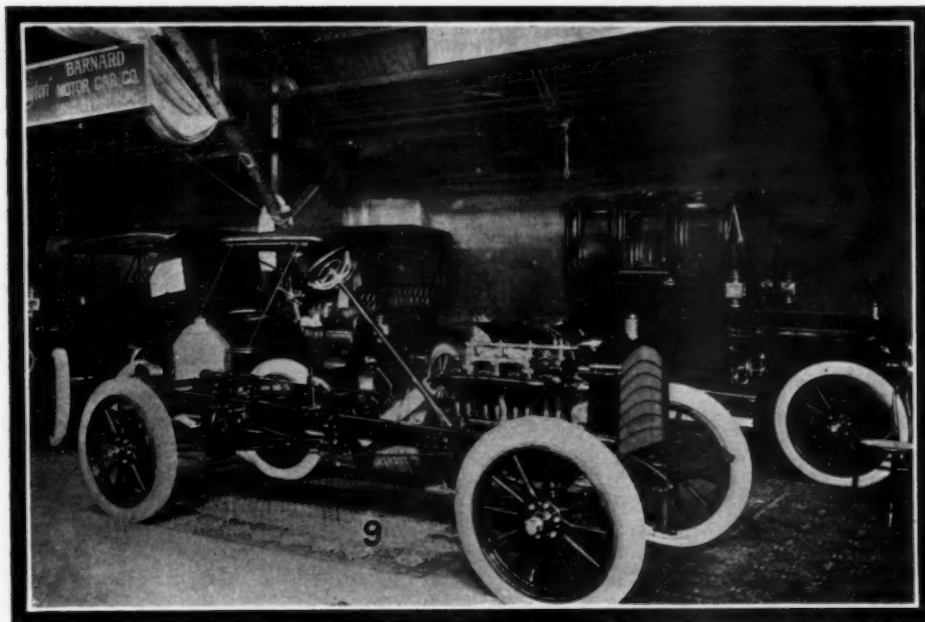
"In this way the community will have the equivalent of a branch line and the company will be able to handle the business without the certainty of loss."

There is now pending in Congress a bill authorizing the formation of a national highway commission. This measure is now in committee and has received favorable preliminary consideration.

Highway commissions and State Aid are being considered in several States in which the antiquated road systems



The Warren "Thirty" and the complete Pullman line were shown advantageously



Rambler chassis and limousine, with Stoddard-Dayton in the background

are now in use, and the prospects of success are excellent. All of which goes to show that the improvement of the highways from one side of the land to the other is one of the big things upon the mind of the public, and that sooner or later, the whole progressive public joining in the wish that it may be sooner, good roads will be the rule and not the exception wherever fly the Stars and Stripes.

Franklin, Mitchell, Packard, Regal, Case, E-M-F, Winton, Glide, Empire, Brush, Paterson and Halladay. Tire companies exhibiting are the Goodrich, Goodyear, Canadian Rubber Company, Dunlop, Firestone and French Michelin. At the outside shows are Krit, Jackson, Republic, Lozier, Moon, Warren, Detroit, Maxwell, Columbia, Metz, Schacht, Paige-Detroit, Speedwell, Chalmers, Mitchell and Vandyke friction-drive truck.

Winnipeg Show Opens

WINNIPEG, MAN., Feb. 13—Winnipeg's first automobile show, conducted under the auspices of the Motor Trade's Association, was opened this afternoon by Lieut.-Governor McMillan, with Mayor Evans also on the program. The season for the show was specially selected owing to the presence in the city of thousands of outsiders who are here from the South, East and West for the great Curling Carnival.

The total floor space now being occupied for auto shows is over 20,000 square feet, and still there are firms who have been unable to secure room for displays.

Among the cars displayed at the big show are the following Canadian-assembled cars: Russell, McLaughlin-Buick, Reo, Overland, Everitt and Ford. American manufacturers are represented by the Hupmobile, Peerless, Kissel Kar, Thomas Flyer, Cadillac, Franklin, Mitchell, Packard, Regal, Case, E-M-F, Winton, Glide, Empire, Brush, Paterson and Halladay. Tire companies exhibiting are the Goodrich, Goodyear, Canadian Rubber Company, Dunlop, Firestone and French Michelin. At the outside shows are Krit, Jackson, Republic, Lozier, Moon, Warren, Detroit, Maxwell, Columbia, Metz, Schacht, Paige-Detroit, Speedwell, Chalmers, Mitchell and Vandyke friction-drive truck.

Brooklyn's First Show—Its Trade Association and Club

BROOKLYN is the present center of automobile interest, for on Saturday night the doors of the Twenty-third Regiment Armory will open to welcome the crowd that assuredly will attend the initial session of the first annual automobile show to be held on Long Island. It seems a little strange that no show has been essayed in Brooklyn until this season, because since the first days of American motoring Long Island has always held a most prominent place in the hearts of car owners, and to-day the statistics show that there are more cars per capita owned in Brooklyn than are owned in any other section of the United States.

The city and the country that is adjacent to it, clear to Montauk Light, is a fertile field for the automobile. The roads are about as good as can be found anywhere in America.

Situated so favorably as regards climate, roads, wealth and the proximity to the metropolis, it seems remarkable that the show feature has not been attempted before this on Long Island.

But, at any rate, there is going to be a big, typical display of standard automobiles commencing Saturday night and running through until the following Saturday night, at which nearly sixty different makes of cars will be exhibited.

The show is under the auspices of the Brooklyn Motor Vehicle Dealers' Association, and has the support of Brooklyn motordom, almost to a man,

Charles H. Green is at the head of the show project, and has displayed a nice discrimination and broad tact in handling his arduous labor.

The Armory is one of the largest halls in the world, much exceeding in floor space Madison Square Garden or the Chicago Coliseum. The exhibits will be all on one floor.

The Motor Vehicle Dealers' Association is an active, forceful body, representing practically the whole trade on Long Island.



Woods Electric, Amplex, Cole "30," Lion and Schacht were shown at Washington

Its members include the agents of most of the well-known makes of automobiles, and its efficiency may be best outlined from the fact that such a host of automobiles is owned and operated by residents of Long Island.

Another great factor in the growth and development of automobile enthusiasm in Brooklyn is the Long Island Automobile Club, whose delightfully adequate club house is situated alongside the entrance to Prospect Park. The organization is known far and wide as "The Club That Does Things," and its name is vividly descriptive of its position in motordom.

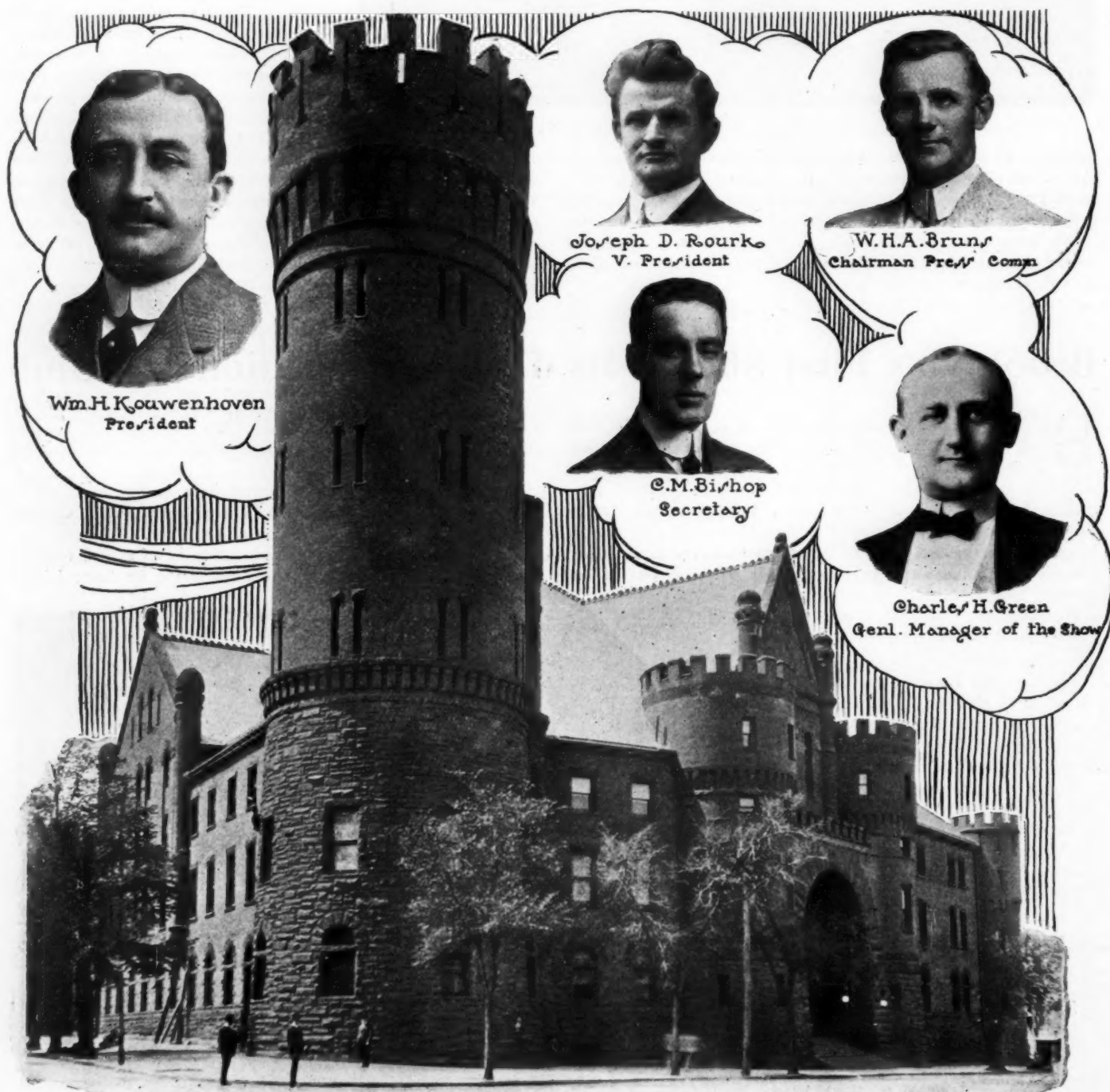
Literally dozens of splendid functions are given each year by the club. These range all the way from the stag party with vaudeville trimmings to the learned lecture on some technical phase of motoring and the formal social gatherings at which Brooklyn society is present.

The club is pulsing with vitality and the bonds that hold its members together are not solely those of automobile enthusiasm.

As a matter of fact, it is distinctly advantageous to belong to the Long Island Automobile Club in a material way. Its garage is one of the most complete in the country, and the privilege of using it is a valuable one. The location of the club is central, 920 Union street, and the culinary facilities of the establishment are such as to attract its members at odd times during the day.

Prospect Park, known as the gateway to Long Island, commences within a stone's throw of the club. Stretching away through the graceful arch that is one of Brooklyn's most noted landmarks, the roads lead clear to Montauk and through the labyrinth of cross highways that cut up the island like a Chinese puzzle. All of the noted summer resorts of the section may be reached by taking one or another of the boulevards that start at Prospect Park.

The club was incorporated in the autumn of 1900 with a membership roll containing the names of less than fifty. It was the second organization formed in America to be devoted exclu-



Wm. H. Kouwenhoven
President

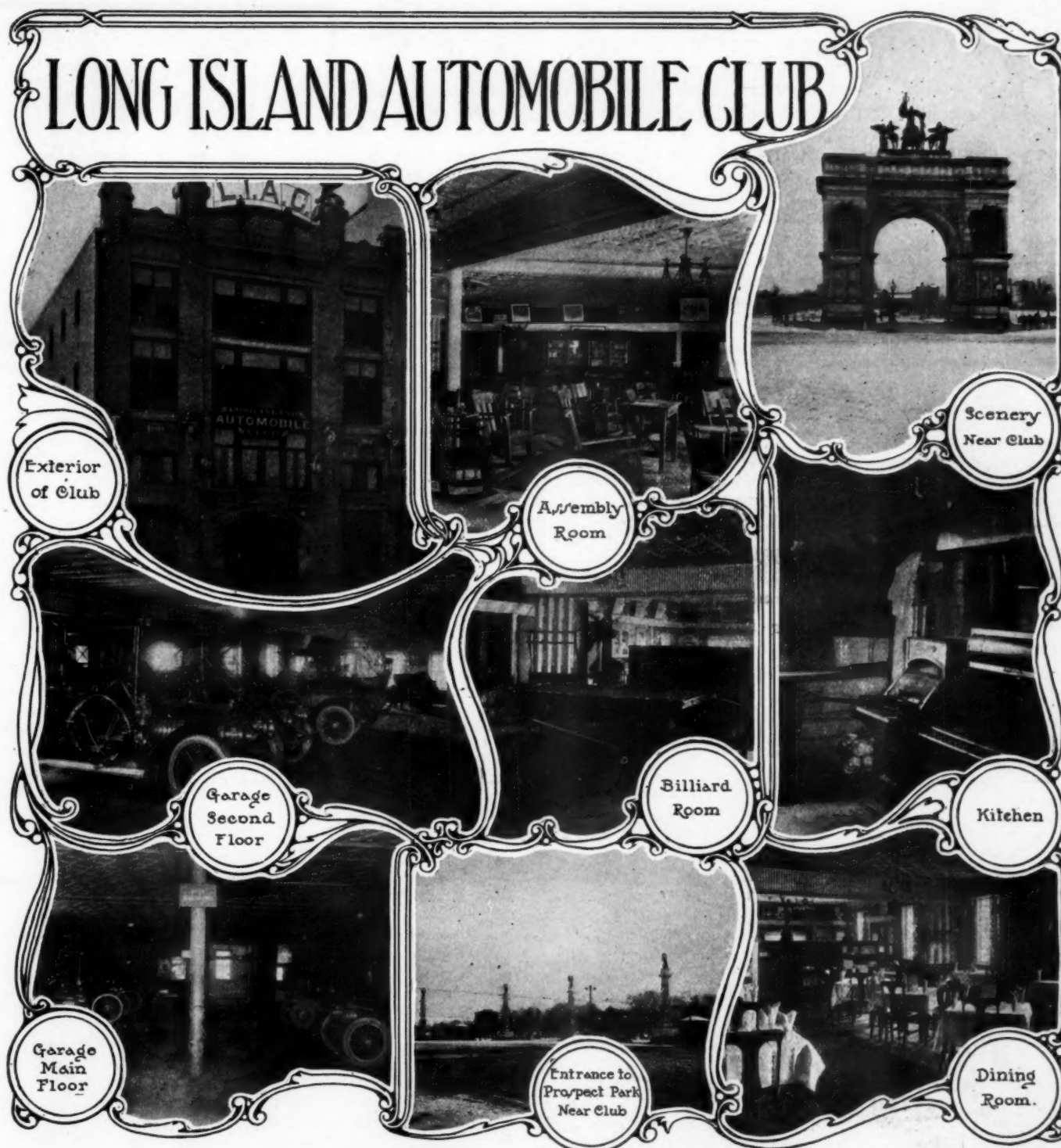
Joseph D. Rourke
V. President

W. H. A. Bruns
Chairman Press Comm.

C. M. Bishop
Secretary

Charles H. Green
Genl. Manager of the Show

PROMOTERS OF THE FIRST BROOKLYN AUTOMOBILE SHOW—TWENTY-THIRD REGIMENT ARMORY, WHERE THE SHOW IS TO OPEN ON FEBRUARY 18



sively to motoring. It was the third in the United States to own its club house and garage.

To-day it has upward of 700 members, many of whom are also leading lights in the Brooklyn Motor Vehicle Dealers' Association. In fact, probably a majority of the dealers are members of the club. The club house is four stories high, with a basement. The basement is used to wash cars. The ground floor is a part of the garage and also contains the business office of the club. The second floor contains the assembly room, dining-room, ladies' department, billiard room and kitchen. The upper floors are devoted to car storage.

The club has done a great work in fostering the growth of automobile sentiment in Brooklyn by making the operation of the car as easy and as pleasant as possible with relation to the law. It is a power in legislation, both local and State, and it has been

largely instrumental in maintaining the rights of the motorist in individual cases. The club is interested in the show because it means something for the automobile in Brooklyn.

The officers of the Motor Vehicle Dealers' Association are as follows: W. H. Kouwenhoven, president; Joseph D. Rourk, vice-president; C. M. Bishop, secretary, and Charles H. Green, general manager of the show.

Chalmers to Address Business Men

INDIANAPOLIS, Feb. 13—Hugh Chalmers, president of the Chalmers Motor Company, has been selected as the chief speaker at the meeting of the Indianapolis Trade Association, a big business organization of this city, on Washington's birthday. Mr. Chalmers' subject will be "The Principles of Business Success."

ACCESSORIES

QUICK REMOVABLE SIDE-WIRE TIRES

A new tire and rim equipment that promises much in the simplifying of the present methods of changing truck tires is offered by The Firestone Tire & Rubber Co., of Akron, Ohio.

The equipment does away with lay-ups for tire repairs or replacements, by enabling the driver to change tires any-

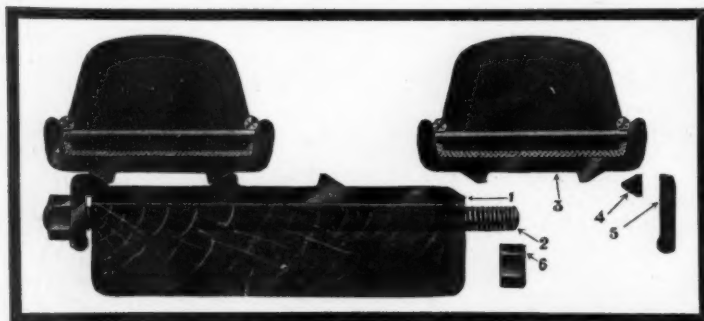


Fig. 1—Showing section and working of Firestone side-wire tire

where in a few minutes, with no other tool than a wrench.

The cut (Fig. 1) shows sectional view of rear wheel equipped with dual tires, one of which has been removed. In order to change tires, the driver removes the nuts (6), of which there are 14 around the wheel. This releases the clamping flange (5). He then slides off the tire,

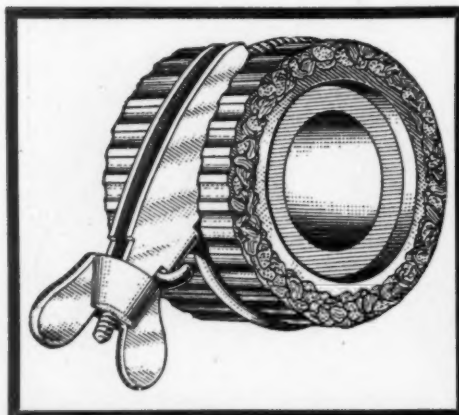


Fig. 2—Clamp for overcoming leaky water joints

rim and all in one lateral movement. The clamping ring (4) is split and comes off along with the tire. A spare tire already applied to rim is substituted by merely reversing the operation. One or two spare rims with tires already applied are kept at headquarters ready for use. Rims of equivalent size and interchangeable on all wheels, front and rear. This equipment enables the removal of any tires at will, to be rebuilt or repaired before they are too far gone.

TO REMEDY LEAKY WATER JOINTS

To overcome the annoying trouble of water joints leaking, the device shown in Fig. 2 has been placed on the market. It consists of a metal clip that fits the shape of the rubber hose and to the clip is attached a flexible coil wire the end of which is threaded to accommodate the wing nut shown. The main object of a hose clamp

is to firmly compress the hose to the pipe and as the wire coils around the connection it touches the rubber and the correct amount of contraction can be given by simply turning thumb nut, as shown in the illustration. It is a handy connection for inaccessible places and is made

by Gus Balzer, 1777 Broadway, New York City.

PNEUMATIC CUSHION FOR CARS

In the accompanying illustration (Fig. 3) are shown the outside of the Gurney Graduated Shock Eliminator and a sectional view of the same. In the latter at the right are depicted the openings in the cylinder wall, showing also the valves for graduating the shock, which are operated by gates above and below on the piston. The latter cut off the admission and escape of air as the piston is forced down and up. The device forms a perfect pneumatic cushion, absorbing road shocks in an easy and effectual manner. A ball-and-socket joint at the base allows for oscillation and the method of attachment in this case is intended for the tubular housing of the rear axle. The fitting is neat in appearance and easily attached to any car. C. S. Gurney, of Portsmouth, N. H., is the manufacturer.

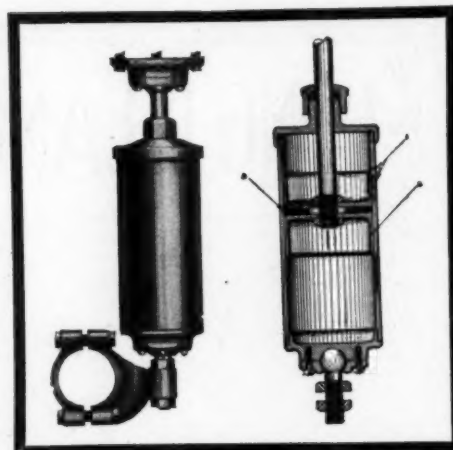


Fig. 3—View and section of Gurney shock eliminator

THE TUTTLE TWO-CYCLE MOTOR

To the well-known features of double intake and exhaust ports which have marked the Tuttle Motor Co.'s two-cycle motors there has been added a rotary intake valve (Fig. 4).

The valve is driven by a train of three gears, enclosed in a neat housing and is so timed as to hold open the intake port until the fullest possible charge has been drawn into the base, when the opening is closed positively. This charge enters the cylinder through two opposite transfer ports, meets the deflectors on the piston head, is turned upward, and the two currents, meeting at the top of cylinder, become a whirling downward force. This helps drive out the burned residue from the exploded charge, but without mixing with it. The Tuttle Motor Co., of Canastota, N. Y., is the manufacturer.

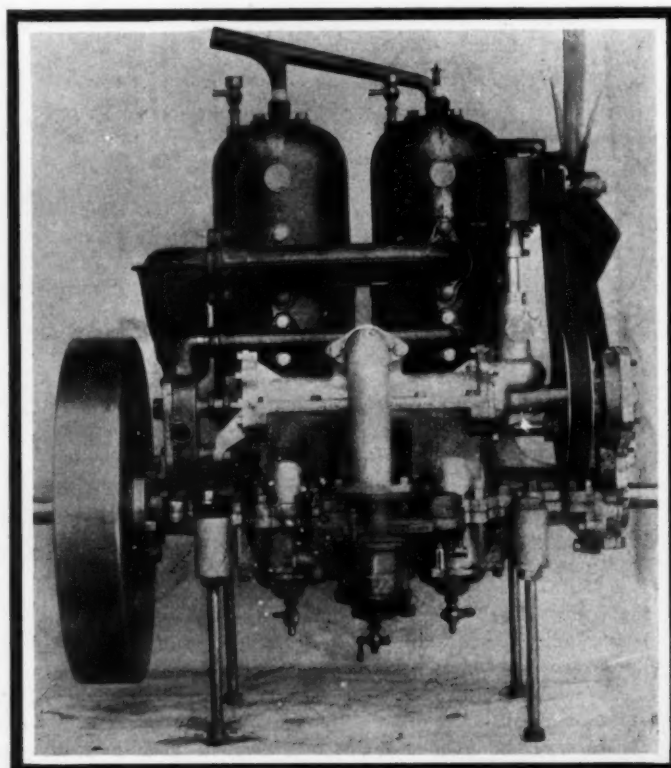


Fig. 4—Showing new features of the Tuttle two-cycle motor